United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with University of Georgia, College of Agricultural and Environmental Sciences, Agricultural Experiment Stations

Soil Survey of Chattahoochee and Marion Counties, Georgia

How To Use This Soil Survey

General Soil Map

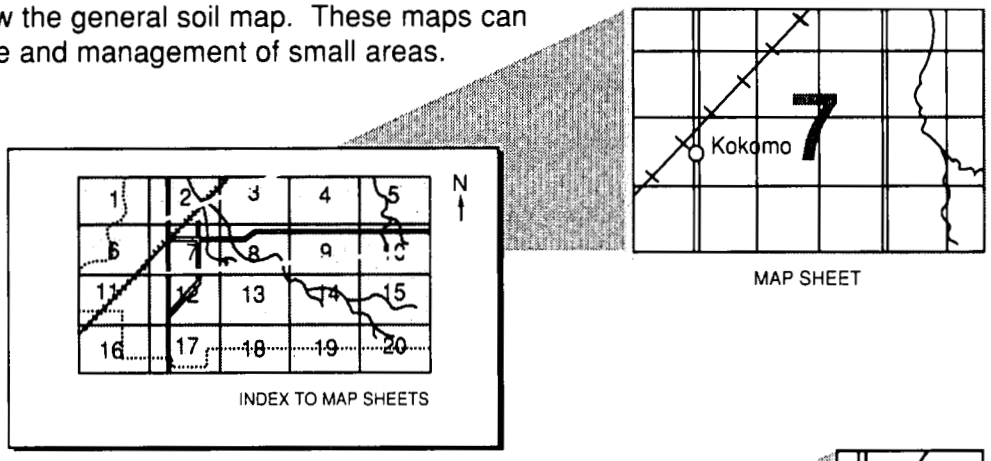
The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

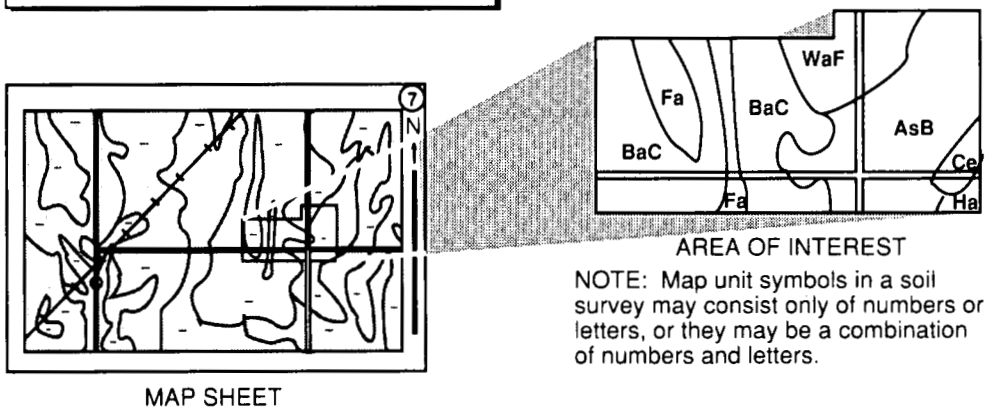
Detailed Soil Maps

The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.



Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units** (see Contents), which lists the map units by symbol and name and shows the page where each map unit is described.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1990. Soil names and descriptions were approved in 1992. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1990. This soil survey was made cooperatively by the Natural Resources Conservation Service and the University of Georgia, College of Agricultural and Environmental Sciences, Agricultural Experiment Stations. It is part of the technical assistance furnished to the Pine Mountain Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

All programs and services of the Natural Resources Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Cover: Peanuts planted on the contour in a terraced field in an area of Orangeburg loamy sand, 2 to 5 percent slopes. Planting on the contour helps to minimize runoff and erosion.

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AaB—Ailey loamy coarse sand, 2 to 5 percent slopes 15
AaC—Ailey loamy coarse sand, 5 to 8 percent slopes 16
Bh—Bibb sandy loam, frequently flooded 18
BoC—Bigbee-Ochlockonee complex, 0 to 5 percent slopes, occasionally flooded 18
Ch—Chastain loam, frequently flooded 19
COC—Cowarts and Ailey soils, 5 to 12 percent slopes 20
COD—Cowarts and Ailey soils, 12 to 18 percent slopes 21
COE—Cowarts and Ailey soils, 12 to 25 percent slopes 22
CwE—Cowarts and Ailey soils, 18 to 25 percent slopes 23
DoB—Dothan loamy sand, 2 to 5 percent slopes 24
DoC—Dothan loamy sand, 5 to 8 percent slopes 24
EmB—Esto sandy loam, 2 to 5 percent slopes 25
EmC—Esto sandy loam, 5 to 8 percent slopes 25
EmD—Esto sandy loam, 8 to 15 percent slopes 26
EtA—Eunola sandy loam, 0 to 3 percent slopes, occasionally flooded 27
FuB—Fuquay loamy sand, 0 to 5 percent slopes 27
FuC—Fuquay loamy sand, 5 to 8 percent slopes 28
GrA—Greenville sandy loam, 0 to 2 percent slopes 28
GrB—Greenville sandy loam, 2 to 5 percent slopes 29
GvC2—Greenville sandy clay loam, 5 to 8 percent slopes, eroded 29
GvD2—Greenville sandy clay loam, 8 to 12 percent slopes, eroded 30
Iu—Iuka sandy loam, occasionally flooded 31
LaB—Lakeland sand, 0 to 5 percent slopes 31
LaC—Lakeland sand, 5 to 12 percent slopes 32
LaD—Lakeland sand, 12 to 18 percent slopes 32
LaE—Lakeland sand, 12 to 25 percent slopes 33
LkE—Lakeland sand, 18 to 25 percent slopes 33
LuB—Lucy loamy sand, 0 to 5 percent slopes 34
LuC—Lucy loamy sand, 5 to 8 percent slopes 34
NaB—Nankin sandy loam, 2 to 5 percent slopes 35
NaC—Nankin sandy loam, 5 to 12 percent slopes 35
NkC3—Nankin sandy clay loam, 5 to 12 percent slopes, severely eroded 36
NkD3—Nankin sandy clay loam, 12 to 18 percent slopes, severely eroded 37
NkE3—Nankin sandy clay loam, 12 to 25 percent slopes, severely eroded 37
NnE3—Nankin sandy clay loam, 18 to 25 percent slopes, severely eroded 38
NnF3—Nankin sandy clay loam, 25 to 35 percent slopes, severely eroded 39
Oc—Ochlockonee sandy loam, rarely flooded 39
OrB—Orangeburg loamy sand, 2 to 5 percent slopes 40
OrC—Orangeburg loamy sand, 5 to 8 percent slopes 40
OrD2—Orangeburg sandy loam, 8 to 12 percent slopes, eroded 41
OuB—Orangeburg-Urban land complex, 2 to 5 percent slopes 41
Ps—Psamments 42
ReB—Red Bay loamy sand, 2 to 5 percent slopes 42
ReC—Red Bay loamy sand, 5 to 8 percent slopes 43
TrB—Troup loamy sand, 2 to 5 percent slopes 43
TrC—Troup loamy sand, 5 to 12 percent slopes 45
TrD—Troup loamy sand, 12 to 18 percent slopes 45
TrE—Troup loamy sand, 12 to 25 percent slopes 46
TuE—Troup loamy sand, 18 to 25 percent slopes 46

Ua—Udorthents, loamy 47
Ub—Udorthents-Urban land complex, 0 to 10 percent slopes 47
UdC—Urban land, 0 to 10 percent slopes 48
UoC—Urban land-Orangeburg complex, 0 to 10 percent slopes 48
UtC—Urban land-Troup complex, 0 to 10 percent slopes 48
VAC—Vaucluse and Ailey soils, 5 to 12 percent slopes 49
VAE—Vaucluse and Ailey soils, 12 to 25 percent slopes 50
WbA—Wahee fine sandy loam, 0 to 2 percent slopes, rarely flooded 51

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Foreword

This soil survey contains information that can be used in land-planning programs in Chattahoochee and Marion Counties. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Soil Survey of Chattahoochee and Marion Counties, Georgia

By Alfred J. Green, Natural Resources Conservation Service

Fieldwork by Alfred J. Green, Jerome L. Langlinais, John H. Johnson, Mack Thomas, Jr., and Grover J. Thomas, Jr., Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
the University of Georgia, College of Agricultural and Environmental Sciences, Agricultural Experiment Stations

Chattahoochee and Marion Counties are in the west-central part of Georgia (fig. 1). The survey area covers about 617 square miles, or 395,100 acres.

Chattahoochee County consists of about 251 square miles, or 160,800 acres. In 1992, the population was about 17,000. Cusseta, located in the central part of the county, is the county seat.

Marion County consists of about 366 square miles, or 234,300 acres. In 1992, the population was about 6,000. Buena Vista, located in the central part of the county, is the county seat.

The first soil survey of Chattahoochee County was published in 1928 *(6)*. This soil survey updates the previous survey and provides additional information.

Approximately 119,500 acres of Chattahoochee County is in the Fort Benning Military Reservation. This area, except for about 28,000 acres, is included in this survey. About 22,000 acres of cantonment was not surveyed because of the high density of development, and about 6,000 acres of impact areas was also not surveyed.

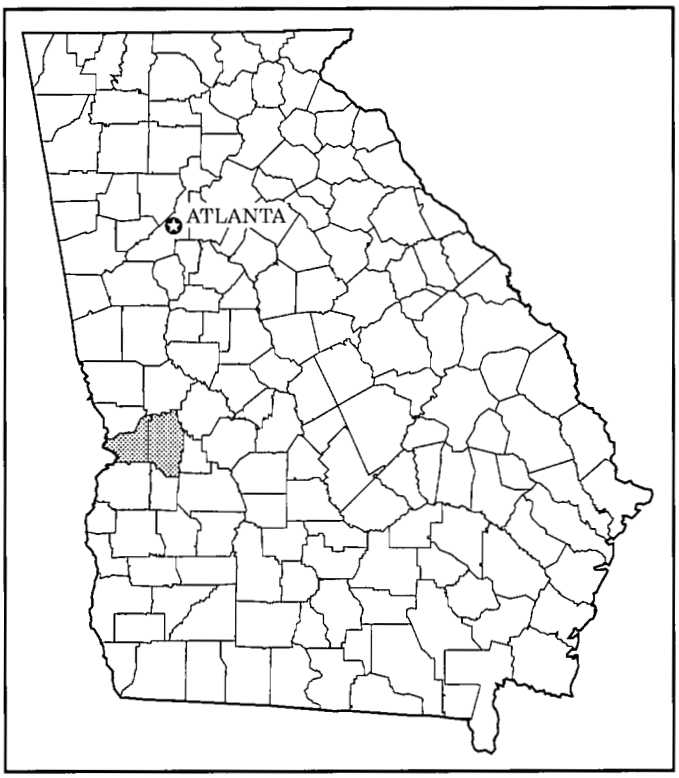

Figure 1.—Location of Chattahoochee and Marion Counties in Georgia.

General Nature of the Survey Area

This section provides general information about Chattahoochee and Marion Counties. It discusses settlement and early history; climate; physiography,

relief, and drainage; geology; water resources; farming; and industries, utilities, and transportation.

Settlement and Early History

The land between the Flint River and the Chattahoochee River, which presently makes up Chattahoochee and Marion Counties, was occupied by the Creek Indians after the Revolutionary War.

Marion County was established by an act of the Georgia Legislature on December 14, 1827. It was formed from parts of Muscogee and Lee Counties. It was named after General Francis Marion of South Carolina. Marion County originally contained all of present-day Schley and Chattahoochee Counties and a large part of present-day Macon and Taylor Counties. The current boundaries of Marion County were established in 1849. The county seat was originally Tazewell and later changed to Buena Vista. Buena Vista was named in commemoration of a famous battle in the Mexican War. Buena Vista was originally called Pea Ridge *(5)*.

Chattahoochee County was established by an act of the Georgia Legislature on February 13, 1854. It was formed from parts of Muscogee and Marion Counties. The current boundaries of Chattahoochee County were established in 1876. Cusseta, the county seat, was named after a tribe of the Lower Creek Indians.

In 1921, the Federal Government purchased a large portion of Chattahoochee and Muscogee Counties to establish a military reservation. The reservation, originally known as Camp Benning, is currently the Fort Benning Military Reservation.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Talbotton, Georgia, in the period 1951 to 1988. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 47 degrees F and the average daily minimum temperature is 34 degrees. The lowest temperature on record, which occurred at Talbotton on January 21, 1985, is -5 degrees. In summer, the average temperature is 78 degrees and the average daily maximum temperature is 90 degrees. The highest recorded temperature, which occurred at Talbotton on July 24, 1952, is 106 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total average annual precipitation is about 52 inches. Of this, 26 inches, or 50 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 21 inches. The heaviest 1-day rainfall during the period of record was 6.05 inches at Talbotton on March 20, 1970. Thunderstorms occur on about 57 days each year.

The average seasonal snowfall is about 1 inch. The greatest snow depth at any one time during the period of record was 1 inch.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 70 percent of the time possible in summer and 60 percent in winter. The prevailing wind is from the west-northwest. Average windspeed is highest, 9 miles per hour, in spring.

Physiography, Relief, and Drainage

Chattahoochee and Marion Counties are in the Carolina and Georgia Sand Hills and Southern Coastal Plain Major Land Resource Areas. The survey area is characterized by nearly level to gently sloping ridgetops, moderately steep and steep hillsides, and nearly level valleys along stream channels and other tributaries. Slopes range from 0 to 35 percent but are mainly 2 to 25 percent.

The northern three-fourths of each county is in the Carolina and Georgia Sand Hills Major Land Resource Area. This area consists mainly of a very gently sloping and gently sloping plain that is dissected by streams in small, shallow valleys. The southern one-fourth of each county is in the Southern Coastal Plain Major Land Resource Area. This area is characterized by very gently sloping and gently sloping ridgetops and gently sloping to moderately steep hillsides.

Narrow to moderately wide, nearly level flood plains are common throughout the survey area. In most places, the flood plains are adjacent to moderately steep hillsides.

Elevation ranges from 179 feet about 0.5 mile southeast of Delario Hill along the Chattahoochee River in Chattahoochee County to 779 feet about 2 miles north of Five Points in Marion County.

The Chattahoochee River, Upatoi Creek, Kinchafoonee Creek, Juniper Creek, and Shoal Creek and their major tributaries are the main sources of drainage for the survey area. The Chattahoochee River drains most of the southwestern part of Chattahoochee

County. Additional drainage in Chattahoochee County is provided by Oswichee Creek, Ochillee Creek, Hichitee Creek, and Pine Knot Creek. Additional drainage in Marion County is provided by Buck Creek, Oochee Creek, Muckalee Creek, Pine Knot Creek, and Lanahassee Creek.

Geology

William R. Fulmer, geologist, Natural Resources Conservation Service, prepared this section.

Chattahoochee and Marion Counties are within the Fall Line Hills District of the Coastal Plain physiographic province and the Carolina and Georgia Sand Hills Major Land Resource Area. The Chattahoochee River forms the western boundary of Chattahoochee County. The Fall Line, which is the contact between the Cretaceous sediments of the Coastal Plain and the older crystalline rocks of the Piedmont, forms the northern boundary of the Fall Line Hills District and is directly north of the northern boundaries of the two counties. The Cretaceous sediments that resulted in the landforms comprising the survey area were deposited in the area of central and western Georgia approximately 70 million years ago. They form a northeastward-trending belt that ranges in width from about 68 miles in the Chattahoochee River Valley to the west to about 22 miles in the Savannah River Valley to the east.

Six distinct geologic units are identified within these counties. In ascending order, they are the older Tuscaloosa Formation, the Eutaw Formation, the Blufftown Formation, the Cusseta Sand, the Ripley Formation, and the Providence Sand. These formations dip in a generally south-southeastern direction at approximately 30 to 35 feet per mile. Tertiary marine sediments were deposited on Cretaceous materials, and minor outcrops occur in the southern part of Marion County. These outcrops are Paleocene to Eocene in age and form the caps of the ridges where Georgia Highways 30 and 41 are located. The marine sediments are typically very sandy. If they are weathered, establishing clear lines of distinction between formations is difficult. As a result, the soils in the survey area may not be unique to any one formation and may actually overlap and occur in several formations. Generally, Troup, Nankin, Ailey, and Cowarts soils are the major soils that formed in the Cretaceous sediments and Orangeburg, Greenville, and Red Bay soils are the dominant soils that formed in the Tertiary sediments.

The Tuscaloosa Formation has limited exposure and outcrops at the lower elevations and on low rolling hills near Upatoi Creek, which is the northern boundary of Chattahoochee and Marion Counties. Geologic erosion along Upatoi Creek combined with base level changes in the Chattahoochee River Valley have exposed the older Cretaceous sediments. The Tuscaloosa Formation is composed of sediments about 250 feet thick consisting of alternating beds of silty mudstone and conglomeratic, crossbedded sandstone. Sandy clay lenses occur within the sandstone. Sands within the sandstone range from loose to cemented, and the matrix material consists of silica or iron. Lensatic and interbedded kaolin is common in the Tuscaloosa Formation in central Georgia.

The Tuscaloosa Formation overlies crystalline bedrock of the Piedmont. The Eutaw Formation overlies the Tuscaloosa Formation. It crops out on short, steep slopes, mainly along the headwaters of the tributary streams draining into Upatoi Creek and on uplands surrounding Upatoi, Ochillee, and Pine Knot Creeks. Elevation ranges from about 200 to 500 feet above sea level. Erosion and entrenchment of the overlying Blufftown Formation have exposed this formation. The Eutaw Formation consists of a basal coarse sand overlain by a dark gray, soft siltstone or shale that is interbedded with fine white sand. Some secondary mixing of strata within the formation has resulted in a distinct mottled appearance. Because of the stratified nature of this formation, gully erosion can be severe on the soils in this area, especially if slopes are modified and vegetative cover is removed.

The Blufftown Formation overlies the Eutaw Formation. It forms a large part of the central uplands of Chattahoochee County and generally occurs at elevations above 400 feet. This formation becomes thinner in an eastward direction. It is limited to the higher elevations directly south of Upatoi Creek in the northwestern part of Marion County. Typically, the Blufftown Formation has alternating beds of sand and sandy clay overlying the crossbedded coarse sand at its base. The clay member contains abundant soft, thin fossil shells. The interbedded, white to gray sands range from 10 to 20 feet in thickness.

The Cusseta Sand occurs in a limited outcrop area in the southeastern part of Chattahoochee County and the central part of Marion County. It overlies the Blufftown Formation and consists of coarse, crossbedded gravelly sand containing small lenses of kaolinitic clay. The surface layer is generally loose, yellow sand. The clays occur in the upper part of the profile. If unweathered, the formation has a gray color and contains fossils. In areas away from the Chattahoochee Valley, the formation has a weathered and oxidized profile in shades of red to pink.

The Ripley Formation overlies the Cusseta Sand. In fresh exposures, this formation consists of fine to coarse, gray to black sand and clayey sand. If weathered, it becomes reddish tan to almost white and

is difficult to distinguish from the similar formations with which it has contact. The southeastern corner of Chattahoochee County is underlain by the Ripley Formation. The formation extends northeast into Marion County, where it forms much of the land directly north of Buena Vista and the ridge caps and uplands along the eastern border of the county. Erosion of this formation commonly has exposed the underlying Cusseta Sand.

The Providence Sand is the youngest Cretaceous formation in the survey area. It crops out mainly along the upland ridges south of Buena Vista and the southern edge of Marion County. Very minor outcrops occur in the southeastern part of Chattahoochee County. Typically, this formation consists of white or light-colored, generally crossbedded, micaceous sand that contains lenses of white or light-colored massive clay. The upland ridges and divides draining into Kinchafoonee and Muckalee Creeks are underlain by the Providence Sand.

The younger Tertiary sediments that were deposited on the Cretaceous materials generally outcrop only in the southern part of Marion County, south of Buena Vista. They were initially deposited uniformly, but geologic erosion has bisected and removed much of this material so that the outcrop area is limited to the ridges where Georgia Highways 30 and 41 are located. The Clayton Formation (Tertiary in age) occurs within this outcrop area. It consists of interbedded red sand and sandy clay. Rounded quartz gravel may be associated with the sand layer.

Water Resources

Chattahoochee and Marion Counties have an abundant supply of good-quality water. Both counties utilize water sources that occur above and below the ground. Bored or drilled wells are the main source of water. Bored wells are 24 to 30 inches in diameter and range from 40 to 80 feet in depth. Drilled wells are 4 inches in diameter and range from 100 to 300 feet in depth. Both types of wells provide a good source of water. Streams supply most of the water for livestock, but a few farm ponds also are used. The Chattahoochee River provides opportunities for fishing and recreation.

Farming

Row crops, livestock, and truck crops are the primary agricultural enterprises in Chattahoochee and Marion Counties. About 77,000 acres is cropland, and about 45,000 acres is pastureland.

Cropland used for row or truck crops is mainly on gently sloping to strongly sloping stream terraces and toe slopes. Peanuts are the dominant crop. Pastureland is mainly on strongly sloping to moderately steep landscapes. Pastures are mostly planted to warm-season grasses and legumes.

The poultry industry is growing rapidly in the survey area. New poultry houses stand on soils that were previously used for pasture or woodland. Most pasture plants and corn crops grown in the survey area support hog, poultry, and cattle operations.

Chattahoochee and Marion Counties are in the Pine Mountain Soil and Water Conservation District. This district was established on July 17, 1939, to promote the wise use of soils and to reduce soil erosion.

Industries, Utilities, and Transportation

Important industries in Chattahoochee and Marion Counties include apparel, food, housing, lumber, poultry, and tourism. The existing poultry industry has greatly expanded its operations in recent years because of an increase in the consumption of poultry and the construction of new poultry houses in Marion County. An increase in population has benefited the housing industry as well as the overall economy of the survey area.

Public utilities in the survey area include electricity, propane gas, telephone, and water. Buena Vista maintains a sewage treatment system for land within the city limits. The rest of the survey area depends on septic tank systems for sewage disposal.

The survey area contains a network of Federal, State, and local highways. Most of the county roads, except for farm roads and roads in remote areas, are paved.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material from which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, landforms, relief,

climate, and natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area are generally collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by two or three kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. In the detailed soil map units, these latter soils are called inclusions or included soils. In the general soil map units, they are called soils of minor extent.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit

descriptions. A few inclusions may not have been observed and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation is needed to plan for intensive uses in small areas.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or a building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The soils in the survey area vary in their suitability for major land uses. In this section each map unit is described in terms of the visual elements of landform, water, vegetation or land use, and structures. The units are classified as as having a low or moderate degree of visual diversity. This is a value rating of landscape elements and their pattern within a frame of reference developed for a local geographic area. Visual diversity can be used in conservation planning and in establishing a desirable continuity of landscape elements. The extent of the units and their components are identified and described. The main management concerns and the soil properties that limit use are indicated. Suitability or the degree of limitation is given for the common uses.

Descriptions of the Soils in Chattahoochee County

1. Bibb-Ochlockonee-Bigbee

Nearly level and very gently sloping, poorly drained, well drained, and excessively drained soils that are loamy or sandy throughout; on flood plains and low stream terraces

Setting

Landscape characterization: Nearly level and very gently sloping Bibb and Ochlockonee soils on flood plains and nearly level and very gently sloping Bigbee soils on low stream terraces along major tributaries of the Chattahoochee River, Upatoi Creek, and Ochillee Creek
Slope range: 0 to 5 percent
Flooding: Occasional or frequent
Hydrologic features: Mainly winding perennial streams
Land use: Mainly woodland and wildlife habitat
Cultural features: Few roads and power lines
Visual diversity: Low

Extent and Composition

Percent of the county: 3 percent
Bibb soils—35 percent
Ochlockonee soils—25 percent
Bigbee soils—10 percent
Minor soils—30 percent

Typical Profile

Bibb

Surface layer:
0 to 5 inches—black sandy loam
5 to 18 inches—dark grayish brown sandy loam
Underlying material:
18 to 55 inches—dark grayish brown sandy loam that has yellowish brown mottles
55 to 80 inches—dark gray silt loam

Ochlockonee

Surface layer:
0 to 5 inches—dark grayish brown sandy loam
Underlying material:
5 to 10 inches—brownish yellow sandy loam
10 to 18 inches—strong brown silt loam
18 to 40 inches—yellowish brown sandy loam
40 to 80 inches—brownish yellow loamy sand that has thin strata of light gray sandy loam

Bigbee

Surface layer:
0 to 4 inches—dark brown fine sand

Underlying material:
4 to 15 inches—yellowish brown fine sand
15 to 35 inches—brownish yellow fine sand
35 to 80 inches—very pale brown fine sand

Minor Soils

- Iuka and Chastain soils on flood plains
- Eunola soils on stream terraces

Use and Management

Major management concerns: Flooding and wetness
Suitability: Poorly suited to field crops, hay, and pasture; well suited to woodland; unsuited to urban uses

2. Urban land-Udorthents-Orangeburg

Nearly level to strongly sloping areas of urban land, disturbed soil material, and soils that have a sandy surface layer and a loamy subsoil; on ridgetops

Setting

Landscape characterization: Nearly level to strongly sloping areas of urban land, disturbed soil material, and soils on ridgetops, in housing areas, and in business districts
Slope range: 0 to 10 percent
Land use: Mainly housing, business districts, cemeteries, parking lots, industries, recreational areas, and roads; few small wooded areas
Cultural features: Roads, buildings, power lines, and parking lots
Visual diversity: High

Extent and Composition

Percent of the county: 3 percent
Urban land—46 percent
Udorthents—20 percent
Orangeburg—12 percent
Minor soils—22 percent

Typical Profile

Orangeburg

Surface layer:
0 to 8 inches—dark brown loamy sand

Subsoil:
8 to 15 inches—yellowish red sandy clay loam
15 to 80 inches—red sandy clay loam

Minor Soils

- Nankin and Troup soils on ridgetops and hillsides

Use and Management

Major management concerns: Erosion
Suitability: Well suited to urban uses

3. Troup-Lakeland

Nearly level to gently sloping, somewhat excessively drained and excessively drained soils that have sandy surface and subsurface layers and a loamy subsoil or are sandy throughout; on ridgetops and hillsides

Setting

Landscape characterization: Nearly level to gently sloping soils on ridgetops and hillsides
Slope range: 0 to 8 percent
Land use: Mainly woodland; cropland in some areas
Cultural features: Many roads, power lines, and farmsteads
Visual diversity: Moderate

Extent and Composition

Percent of the county: 13 percent
Troup soils—41 percent
Lakeland soils—17 percent
Minor soils—42 percent

Typical Profile

Troup

Surface layer:
0 to 4 inches—brown loamy sand

Subsurface layer:
4 to 16 inches—light yellowish brown loamy sand
16 to 68 inches—yellowish red sand

Subsoil:
68 to 78 inches—red sandy loam
78 to 80 inches—red sandy clay loam

Lakeland

Surface layer:
0 to 4 inches—very dark grayish brown sand

Underlying material:
4 to 60 inches—strong brown sand
60 to 80 inches—reddish yellow sand

Minor Soils

- Cowarts, Ailey, and Nankin soils on broad ridgetops and hillsides
- Bibb soils on flood plains

Use and Management

Major management concerns: Erosion and droughtiness
Suitability: Poorly suited to field crops, hay, and pasture;

moderately suited to woodland; well suited to moderately suited to urban uses

4. Nankin-Cowarts

Gently sloping to steep, well drained soils that have a loamy surface layer and a clayey subsoil or have a sandy surface layer, a loamy subsoil, and a loamy, compact substratum; on ridgetops and hillsides

Setting

Landscape characterization: Gently sloping to steep soils on ridgetops and hillsides
Slope range: 5 to 35 percent
Land use: Mainly woodland
Cultural features: Few roads, power lines, and buildings
Visual diversity: Moderate
Distinctive features: Dense, compact substratum in the Cowarts soils

Extent and Composition

Percent of the county: 28 percent
Nankin soils—61 percent
Cowarts soils—9 percent
Minor soils—30 percent

Typical Profile

Nankin

Surface layer:
0 to 3 inches—brown sandy clay loam

Subsoil:
3 to 8 inches—yellowish red sandy clay
8 to 25 inches—yellowish red sandy clay that has yellowish brown and red mottles
25 to 45 inches—mottled strong brown, light gray, red, and yellowish brown sandy clay

Substratum:
45 to 58 inches—mottled strong brown, light gray, and red sandy clay loam
58 to 80 inches—mottled red, light gray, and strong brown sandy clay loam

Cowarts

Surface layer:
0 to 4 inches—dark grayish brown loamy sand

Subsurface layer:
4 to 14 inches—brownish yellow loamy sand

Subsoil:
14 to 20 inches—yellowish brown sandy loam
20 to 37 inches—yellowish red sandy clay loam

Substratum:
37 to 80 inches—mottled yellowish red, strong brown, and light gray sandy loam

Minor Soils

- Ailey and Troup soils on ridgetops and hillsides
- Iuka and Bibb soils on flood plains

Use and Management

Major management concerns: Slope
Suitability: Poorly suited to unsuited to field crops; moderately suited to poorly suited to hay and pasture; moderately suited to woodland; moderately suited to poorly suited to urban uses

5. Troup-Nankin-Cowarts

Gently sloping to steep, somewhat excessively drained and well drained soils that have sandy surface and subsurface layers and a loamy subsoil; a loamy surface layer and a clayey subsoil; or a sandy surface layer, a loamy subsoil, and a loamy, compact substratum; on ridgetops and hillsides

Setting

Landscape characterization: Gently sloping to steep soils on ridgetops and hillsides
Slope range: 5 to 35 percent
Land use: Mainly woodland; pasture in some areas
Cultural features: Few roads and some power lines
Visual diversity: Moderate
Distinctive features: Dense, compact substratum in the Cowarts soils

Extent and Composition

Percent of the county: 53 percent
Troup soils—30 percent
Nankin soils—27 percent
Cowarts soils—10 percent
Minor soils—33 percent

Typical Profile

Troup

Surface layer:
0 to 4 inches—brown loamy sand

Subsurface layer:
4 to 16 inches—light yellowish brown loamy sand
16 to 68 inches—yellowish red sand

Subsoil:
68 to 78 inches—red sandy loam
78 to 80 inches—red sandy clay loam

Nankin

Surface layer:
0 to 3 inches—brown sandy clay loam

Subsoil:
3 to 8 inches—yellowish red sandy clay

8 to 25 inches—yellowish red sandy clay that has yellowish brown and red mottles
25 to 45 inches—mottled strong brown, light gray, red, and yellowish brown sandy clay

Substratum:
45 to 58 inches—mottled strong brown, light gray, and red sandy clay loam
58 to 80 inches—mottled red, light gray, and strong brown sandy clay loam

Cowarts

Surface layer:
0 to 4 inches—dark grayish brown loamy sand

Subsurface layer:
4 to 14 inches—brownish yellow loamy sand

Subsoil:
14 to 20 inches—yellowish brown sandy loam
20 to 37 inches—yellowish red sandy clay loam

Substratum:
37 to 80 inches—mottled yellowish red, strong brown, and light gray sandy loam

Minor Soils

- Ailey, Lakeland, and Orangeburg soils on ridgetops and hillsides
- Bibb soils on flood plains

Use and Management

Major management concerns: Erosion, droughtiness, and slope
Suitability: Poorly suited to unsuited to field crops; moderately suited to unsuited to hay; moderately suited to poorly suited to pasture; moderately suited to woodland; well suited to poorly suited to urban uses

Descriptions of the Soils in Marion County

1. Bibb-Iuka

Nearly level, poorly drained and moderately well drained soils that are loamy throughout; on flood plains

Setting

Landscape characterization: Nearly level flood plains along the major tributaries of Shoal Creek, Kinchafoonee Creek, and Pine Knot Creek
Slope range: 0 to 2 percent
Flooding: Occasional or frequent
Hydrologic features: Mainly winding perennial and intermittent streams
Land use: Mainly woodland and wildlife habitat
Cultural features: Few roads and power lines
Visual diversity: Low

Extent and Composition

Percent of the county: 3 percent
Bibb soils—60 percent
Iuka soils—23 percent
Minor soils—17 percent

Typical Profile

Bibb

Surface layer:
0 to 5 inches—black sandy loam
5 to 18 inches—very dark gray sandy loam

Underlying material:
18 to 55 inches—dark gray sandy loam that has yellowish brown mottles
55 to 80 inches—dark gray silt loam

Iuka

Surface layer:
0 to 5 inches—brown sandy loam

Underlying material:
5 to 8 inches—yellowish brown sandy loam that has reddish brown mottles
8 to 36 inches—yellowish brown sandy loam that has light brownish gray, reddish brown, and red mottles
36 to 80 inches—light brownish gray sandy loam that has yellowish brown and reddish yellow mottles

Minor Soils

- Cowarts, Ailey, Nankin, and Troup soils on ridgetops and hillsides

Use and Management

Major management concerns: Flooding and wetness
Suitability of the Bibb soils: Poorly suited to field crops, hay, and pasture; well suited to moderately suited to woodland; unsuited to urban uses
Suitability of the Iuka soils: Poorly suited to field crops; well suited to hay and pasture; well suited to moderately suited to woodland; unsuited to urban uses

2. Orangeburg-Troup-Lucy

Nearly level to gently sloping, well drained soils that have a sandy or loamy surface layer and a loamy subsoil; on ridgetops and hillsides of uplands

Setting

Landscape characterization: Nearly level to gently sloping soils on ridgetops and hillsides
Slope range: 0 to 8 percent
Land use: Mainly cropland; pasture and woodland in some areas

Cultural features: Roads, some power lines, fences, and farm homes and associated structures
Visual diversity: High

Extent and Composition

Percent of the county: 25 percent
Orangeburg soils—33 percent
Troup soils—27 percent
Lucy soils—11 percent
Minor soils—29 percent

Typical Profile

Orangeburg

Surface layer:
0 to 8 inches—dark brown loamy sand
Subsoil:
8 to 15 inches—yellowish red sandy clay loam
15 to 80 inches—red sandy clay loam

Troup

Surface layer:
0 to 4 inches—brown loamy sand
Subsurface layer:
4 to 16 inches—light yellowish brown loamy sand
16 to 68 inches—yellowish red sand
Subsoil:
68 to 78 inches—red sandy loam
78 to 80 inches—red sandy clay loam

Lucy

Surface layer:
0 to 10 inches—brown loamy sand
Subsurface layer:
10 to 26 inches—strong brown loamy sand
Subsoil:
26 to 36 inches—yellowish red sandy loam
36 to 80 inches—red sandy clay loam

Minor Soils

- Ailey, Dothan, and Cowarts soils on ridgetops and hillsides
- Bibb soils along stream channels

Use and Management

Major management concerns: Erosion and low available water capacity
Suitability: Well suited to poorly suited to field crops, hay, and pasture; well suited to moderately suited to woodland; well suited to urban uses

3. Troup-Lakeland

Nearly level to gently sloping, somewhat excessively drained and excessively drained soils that have a sandy surface layer, a thick, sandy subsurface layer, and a loamy subsoil or are sandy throughout; on ridgetops and hillsides

Setting

Landscape characterization: Nearly level to gently sloping soils on ridgetops and hillsides
Slope range: 0 to 8 percent
Land use: Mainly woodland; pasture and cropland in some areas
Cultural features: Mainly roads, farmsteads, and power lines
Visual diversity: Moderate

Extent and Composition

Percent of the county: 28 percent
Troup soils—46 percent
Lakeland soils—34 percent
Minor soils—20 percent

Typical Profile

Troup

Surface layer:
0 to 4 inches—brown loamy sand
Subsurface layer:
4 to 16 inches—light yellowish brown loamy sand
16 to 68 inches—yellowish red sand
Subsoil:
68 to 78 inches—red sandy loam
78 to 80 inches—red sandy clay loam

Lakeland

Surface layer:
0 to 4 inches—very dark grayish brown sand
Underlying material:
4 to 60 inches—strong brown sand
60 to 80 inches—reddish yellow sand

Minor Soils

- Ailey, Cowarts, Nankin, and Orangeburg soils on ridgetops and hillsides
- Bibb soils along stream channels

Use and Management

Major management concerns: Erosion and droughtiness
Suitability: Poorly suited to field crops, hay, and pasture; moderately suited to woodland; well suited to moderately suited to urban uses

4. Nankin-Cowarts-Ailey

Gently sloping to steep, well drained soils that have a loamy surface layer and a clayey subsoil or have sandy surface and subsurface layers, a loamy subsoil, and a

loamy, compact substratum; on ridgetops and hillsides

Setting

Landscape characterization: Gently sloping to steep soils on ridgetops and hillsides
Slope range: 5 to 35 percent
Land use: Mainly woodland
Cultural features: Few roads, power lines, and buildings
Visual diversity: Moderate
Distinctive features of the Cowarts soils: Dense, compact substratum
Distinctive features of the Ailey soils: Dense and brittle properties are in 10 to 40 percent of the lower part of the subsoil; most of the substratum is compact

Extent and Composition

Percent of the county: 16 percent
Nankin soils—31 percent
Cowarts soils—26 percent
Ailey soils—17 percent
Minor soils—26 percent

Typical Profile

Nankin

Surface layer:
0 to 3 inches—brown sandy clay loam
Subsoil:
3 to 8 inches—yellowish red sandy clay
8 to 25 inches—yellowish red sandy clay that has yellowish brown and red mottles
25 to 45 inches—mottled strong brown, light gray, red, and yellowish brown sandy clay
Substratum:
45 to 58 inches—mottled strong brown, light gray, and red sandy clay loam
58 to 80 inches—mottled red, light gray, and strong brown sandy clay loam

Cowarts

Surface layer:
0 to 4 inches—dark grayish brown loamy sand
Subsurface layer:
4 to 14 inches—brownish yellow loamy sand
Subsoil:
14 to 20 inches—yellowish brown sandy loam
20 to 37 inches—yellowish red sandy clay loam
Substratum:
37 to 80 inches—mottled yellowish red, strong brown, and light gray sandy loam

Ailey

Surface layer:
0 to 9 inches—dark grayish brown loamy coarse sand
Subsurface layer:
9 to 24 inches—yellowish brown loamy sand
Subsoil:
24 to 30 inches—yellowish brown coarse sandy loam
30 to 38 inches—yellowish brown sandy clay loam that has yellowish red mottles
38 to 45 inches—yellowish brown sandy clay loam that has strong brown, yellowish red, and red mottles
Substratum:
45 to 80 inches—red sandy loam that has yellowish brown, strong brown, and light gray mottles

Minor Soils

- Orangeburg and Troup soils on ridgetops and hillsides
- Bibb and Iuka soils on flood plains

Use and Management

Major management concerns: Erosion and slope
Suitability: Poorly suited to unsuited to field crops; moderately suited to poorly suited to hay and pasture; moderately suited to woodland; moderately suited to poorly suited to urban uses

5. Troup-Cowarts-Ailey

Gently sloping to steep, somewhat excessively drained and well drained soils that have sandy surface and subsurface layers and a loamy subsoil or have sandy surface and subsurface layers, a loamy subsoil, and a loamy, compact substratum; on ridgetops and hillsides

Setting

Landscape characterization: Gently sloping to steep soils on ridgetops and hillsides
Slope range: 5 to 35 percent
Land use: Mainly woodland; pasture in some areas
Cultural features: Few roads and power lines
Visual diversity: Moderate
Distinctive features of the Cowarts soils: Dense, compact substratum
Distinctive features of the Ailey soils: Dense and brittle properties are in 10 to 40 percent of the lower part of the subsoil; most of the substratum is compact

Extent and Composition

Percent of the county: 28 percent
Troup soils—39 percent
Cowarts soils—18 percent
Ailey soils—11 percent
Minor soils—32 percent

Typical Profile

Troup

Surface layer:
0 to 4 inches—brown loamy sand

Subsurface layer:
4 to 16 inches—light yellowish brown loamy sand
16 to 68 inches—yellowish red sand
Subsoil:
68 to 78 inches—red sandy loam
78 to 80 inches—red sandy clay loam

Cowarts

Surface layer:
0 to 4 inches—dark grayish brown loamy sand
Subsurface layer:
4 to 14 inches—brownish yellow loamy sand
Subsoil:
14 to 20 inches—yellowish brown sandy loam
20 to 37 inches—yellowish red sandy clay loam
Substratum:
37 to 80 inches—mottled yellowish red, strong brown, and light gray sandy loam

Ailey

Surface layer:
0 to 9 inches—dark grayish brown loamy coarse sand
Subsurface layer:
9 to 24 inches—yellowish brown loamy sand
Subsoil:
24 to 30 inches—yellowish brown coarse sandy loam
30 to 38 inches—yellowish brown sandy clay loam that has yellowish red mottles
38 to 45 inches—yellowish brown sandy clay loam that has strong brown, yellowish red, and red mottles
Substratum:
45 to 80 inches—red sandy loam that has yellowish brown, strong brown, and light gray mottles

Minor Soils

- Nankin and Vaucluse soils on ridgetops and hillsides
- Bibb and Iuka soils on flood plains

Use and Management

Major management concerns: Erosion and seedling mortality
Suitability: Poorly suited to unsuited to field crops; moderately suited to unsuited to hay; poorly suited to unsuited to pasture; moderately suited to woodland; well suited to poorly suited to urban uses

Broad Land Use Considerations

Soils in Chattahoochee and Marion Counties vary widely in their suitability for major land uses. Current uses include cropland, pastureland, woodland, recreational areas, wildlife areas, and urban or built-up land. Generally, the soils in the survey area are well suited to cultivated crops and urban development. Their suitability for farming should not be overlooked in planning. Information about specific soils in this survey area can be helpful in planning future land use patterns. The general soil map can be used for broad planning, but it cannot be used to locate the site for a specific structure.

Many of the soils on uplands in the survey area are used for cultivated crops, pasture, or hay. They are well suited to these uses. Most of these soils are nearly level to gently sloping and are well drained. Some are gently sloping and are somewhat excessively drained or excessively drained. In some areas the soils are only moderately suited, poorly suited, or unsuited to farming because of a low available water capacity, a severe hazard of erosion, slope, or a high water table. Most of the soils on flood plains are poorly drained and are used as woodland. They are poorly suited to farming. In some areas adjacent to flood plains, however, the soils are well drained and are moderately suited to farming.

About 66 percent of the survey area is used as woodland. The potential productivity of the soils for woodland generally is moderate or high.

On about two-thirds of the acreage, the soils are on ridgetops and hillsides. Most are well drained and are well suited to most nonfarm uses. On about 3 percent of this acreage, however, the soils are less well suited to nonfarm uses because of a cemented and brittle underlying layer or because of the slope. The rest of the soils in the survey area are on flood plains, in upland depressions, or on smooth, nearly level uplands where they are seasonally wet. These soils are moderately suited or poorly suited to nonfarm uses.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under the heading "Use and Management of the Soils." The suitability ratings are explained in the Glossary.

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Troup loamy sand, 5 to 12 percent slopes, is a phase of the Troup series.

Some map units are made up of two or more major soils. These map units are called soil complexes or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Bigbee-Ochlockonee complex, 0 to 5 percent slopes, occasionally flooded, is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Cowarts and Ailey soils, 5 to 12 percent slopes, is an undifferentiated group in this survey area.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Urban land, 0 to 10 percent slopes, is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

AaB—Ailey loamy coarse sand, 2 to 5 percent slopes

Setting

Landscape position: Ridgetops
Slope class: Very gently sloping
Slope topography: Smooth and convex
Size of areas: 10 to 80 acres

Typical Profile

Surface layer:
0 to 9 inches—dark grayish brown loamy coarse sand
Subsurface layer:
9 to 24 inches—yellowish brown loamy sand

Subsoil:
24 to 30 inches—yellowish brown coarse sandy loam
30 to 38 inches—yellowish brown sandy clay loam that has yellowish red mottles
38 to 45 inches—yellowish brown sandy clay loam that has strong brown, yellowish red, and red mottles

Substratum:
45 to 80 inches—red sandy loam that has yellowish brown, strong brown, and light gray mottles

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part of the subsoil and in the substratum
Available water capacity: Low
Tilth: Good
Root zone: Deep to a compact substratum
Distinctive features: Soil is dense and brittle in 10 to 40 percent of the lower part of the subsoil; most of the substratum is compact

Inclusions

• A few small areas of Cowarts, Fuquay, Nankin, and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Low available water capacity
Suitable management measures: Returning crop residue to the soil

Woodland

Potential productivity: Moderate
Trees preferred for planting: Slash pine and longleaf pine (fig. 2)
Management concerns: Seedling mortality and equipment limitations
Suitable management measures: Planting drought-tolerant species; performing management operations during the wetter periods

Urban uses

Suitability: Well suited
Limitations: Slope and slow permeability in the subsoil

Recreational development

Suitability: Moderately suited
Limitations: Sandy surface and subsurface layers
Suitable management measures: Proper layout of playgrounds, camping areas, and picnic areas

Interpretive Groups

Land capability classification: IIIs
Woodland ordination symbol: 8S

AaC—Ailey loamy coarse sand, 5 to 8 percent slopes

Setting

Landscape position: Hillsides
Slope class: Gently sloping
Slope topography: Smooth and convex
Size of areas: 10 to 100 acres

Typical Profile

Surface layer:
0 to 9 inches—dark grayish brown loamy coarse sand

Subsurface layer:
9 to 24 inches—yellowish brown loamy sand

Subsoil:
24 to 30 inches—yellowish brown coarse sandy loam
30 to 38 inches—yellowish brown sandy clay loam that has yellowish red mottles
38 to 45 inches—yellowish brown sandy clay loam that has strong brown, yellowish red, and red mottles

Substratum:
45 to 80 inches—red sandy loam that has yellowish brown, strong brown, and light gray mottles

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part of the subsoil and in the substratum
Available water capacity: Low
Tilth: Good
Root zone: Deep to a compact substratum
Distinctive features: Soil is dense and brittle in 10 to 40 percent of the lower part of the subsoil; most of the substratum is compact

Inclusions

• A few small areas of Cowarts, Fuquay, Nankin, and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited

Figure 2.—A well managed stand of slash pine in an area of Ailey loamy coarse sand, 2 to 5 percent slopes.

Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Low available water capacity
Suitable management measures: Returning crop residue to the soil

Woodland

Potential productivity: Moderate
Trees preferred for planting: Slash pine and longleaf pine
Management concerns: Seedling mortality and equipment limitations
Suitable management measures: Planting drought-tolerant species; performing management operations during the wetter periods

Urban uses

Suitability: Well suited
Limitations: Slope and slow permeability in the subsoil

Recreational development

Suitability: Moderately suited
Limitations: Sandy surface and subsurface layers
Suitable management measures: Proper layout of playgrounds, camping areas, and picnic areas

Interpretive Groups

Land capability classification: IVs
Woodland ordination symbol: 8S

Bh—Bibb sandy loam, frequently flooded

Setting

Landscape position: Flood plains
Flooding: Frequent
Slope class: Nearly level
Slope topography: Concave
Size of areas: 5 to 300 acres

Typical Profile

Surface layer:
0 to 5 inches—black sandy loam
5 to 18 inches—dark grayish brown sandy loam
Underlying material:
18 to 55 inches—dark grayish brown sandy loam that has yellowish brown mottles
55 to 80 inches—dark gray silt loam

Soil Properties and Qualities

Drainage class: Poorly drained
Depth to high water table: 0.5 to 1.0 foot
Organic matter content: Moderately low or moderate
Permeability: Moderate
Available water capacity: Moderate
Tilth: Fair
Root zone: Very deep

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Poorly suited
Suitability for pasture: Poorly suited
Management concerns: Wetness and flooding

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, sweetgum, and yellow-poplar
Management concerns: Wetness, flooding, seedling mortality, and equipment limitations
Suitable management measures: Performing management operations during the drier periods

Urban uses

Suitability: Unsuited
Limitations: Wetness and flooding

Recreational development

Suitability: Poorly suited
Limitations: Wetness and flooding

Interpretive Groups

Land capability classification: Vw
Woodland ordination symbol: 11W

BoC—Bigbee-Ochlockonee complex, 0 to 5 percent slopes, occasionally flooded

Setting

Landscape position: Low stream terraces and flood plains
Landscape features: Rolling topography
Flooding: Occasional
Slope class: Nearly level and very gently sloping
Slope topography: Complex
Size of areas: 150 to 300 acres

Composition

Bigbee soil—50 percent
Ochlockonee soil—45 percent
Inclusions—5 percent

Pattern of occurrence: Excessively drained Bigbee soil and well drained Ochlockonee soil occur intermingled in a regular repeating pattern and cannot be mapped separately at scale selected

Typical Profile

Bigbee

Surface layer:
0 to 4 inches—dark brown fine sand
Underlying material:
4 to 15 inches—yellowish brown fine sand
15 to 35 inches—brownish yellow fine sand
35 to 80 inches—very pale brown fine sand

Ochlockonee

Surface layer:
0 to 5 inches—dark grayish brown sandy loam
Underlying material:
5 to 10 inches—brownish yellow sandy loam
10 to 18 inches—strong brown silt loam
18 to 40 inches—yellowish brown sandy loam
40 to 80 inches—brownish yellow loamy sand that has thin strata of light gray sandy loam

Soil Properties and Qualities

Bigbee

General location: Terraces and low convex ridges adjacent to flood plains and sloughs
Drainage class: Excessively drained
Depth to high water table: 3.5 to 6.0 feet
Organic matter content: Low or moderately low
Permeability: Rapid
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Ochlockonee

General location: Flood plains adjacent to streams
Drainage class: Well drained
Depth to high water table: 3 to 5 feet
Organic matter content: Low or moderately low
Permeability: Moderate
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Bibb soils on flood plains
- A few small areas of Bigbee soils that have slopes of 5 to 10 percent, on low stream terraces

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Moderately suited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Flooding and low available water capacity

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine, slash pine, longleaf pine, and yellow-poplar
Management concerns: Seedling mortality
Suitable management measures: Proper planting procedures; planting drought-tolerant species

Urban uses

Suitability: Unsuited
Limitations: Flooding

Recreational development

Suitability: Moderately suited
Limitations: Flooding and sandy texture

Interpretive Groups

Land capability classification: Bigbee—IIIs; Ochlockonee—IIw
Woodland ordination symbol: Bigbee—9S; Ochlockonee—11A

Ch—Chastain loam, frequently flooded

Setting

Landscape position: Flood plains
Flooding: Frequent
Slope class: Nearly level
Slope topography: Smooth and concave
Size of areas: 10 to 70 acres

Typical Profile

Surface layer:
0 to 3 inches—very dark grayish brown loam
Subsoil:
3 to 12 inches—light brownish gray clay loam that has yellowish brown and very dark grayish brown mottles
12 to 38 inches—light brownish gray clay that has strong brown and yellowish red mottles
38 to 56 inches—light brownish gray clay that has strong brown, yellowish brown, and red mottles
Substratum:
56 to 78 inches—light brownish gray, stratified sandy clay loam and clay loam having strong brown, yellowish brown, and red mottles

Soil Properties and Qualities

Drainage class: Poorly drained
High water table: Within a depth of 1 foot
Organic matter content: Moderately low to high
Permeability: Slow
Available water capacity: Moderate
Tilth: Fair
Root zone: Very deep

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Poorly suited
Suitability for pasture: Moderately suited
Management concerns: Flooding and wetness

Woodland

Potential productivity: Moderate
Trees preferred for planting: Sweetgum

Management concerns: Wetness, flooding, seedling mortality, and equipment limitations
Suitable management measures: Performing management operations during the drier periods; drainage systems; bedding; control of plant competition; planting adapted species

Urban uses

Suitability: Unsuited
Limitations: Wetness and flooding

Recreational development

Suitability: Poorly suited
Limitations: Wetness and flooding

Interpretive Groups

Land capability classification: VIIw
Woodland ordination symbol: 8W

COC—Cowarts and Ailey soils, 5 to 12 percent slopes

Setting

Landscape position: Ridgetops and hillsides
Surface features: Shallow gullies
Slope class: Gently sloping and strongly sloping
Slope topography: Complex
Size of areas: 10 to 70 acres

Composition

Cowarts soil—55 percent
Ailey soil—35 percent
Inclusions—10 percent

Pattern of occurrence: Soils occur in an irregular pattern; both soils are in most areas but not all areas; extent of mapping is sufficient for interpretations of present and predicted uses

Typical Profile

Cowarts

Surface layer:
0 to 4 inches—dark grayish brown loamy sand

Subsurface layer:
4 to 14 inches—brownish yellow loamy sand

Subsoil:
14 to 20 inches—yellowish brown sandy loam
20 to 37 inches—yellowish red sandy clay loam

Substratum:
37 to 80 inches—mottled yellowish red, strong brown, and light gray sandy loam

Ailey

Surface layer:
0 to 9 inches—dark grayish brown loamy coarse sand

Subsurface layer:
9 to 24 inches—yellowish brown loamy sand

Subsoil:
24 to 30 inches—yellowish brown coarse sandy loam
30 to 38 inches—yellowish brown sandy clay loam that has yellowish red mottles
38 to 45 inches—yellowish brown sandy clay loam that has strong brown, red, and yellowish red mottles

Substratum:
45 to 80 inches—red sandy loam that has yellowish brown, strong brown, and light gray mottles

Soil Properties and Qualities

Cowarts

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate in the subsoil and moderately slow or slow in the substratum
Available water capacity: Moderate
Tilth: Good
Root zone: Moderately deep to a compact substratum
Distinctive features: Dense, compact substratum

Ailey

Drainage class: Well drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part of the subsoil and in the substratum
Available water capacity: Low
Tilth: Good
Root zone: Deep to a compact substratum
Distinctive features: Soil is dense and brittle in 10 to 40 percent of the lower part of the subsoil; most of the substratum is compact

Inclusions

- A few small areas of Lucy, Nankin, and Troup soils
- A few small areas of soils that have a surface layer of sandy loam

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Slope, erosion, and low available water capacity
Suitable management measures: Conservation cropping systems; conservation tillage; water management

Woodland

Potential productivity: Moderate

Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Cowarts—no significant limitations; Ailey—equipment limitations and seedling mortality
Suitable management measures: Planting drought-tolerant species; in sandy areas, performing management operations during the wetter periods

Urban uses

Suitability: Moderately suited
Limitations: Slow permeability in the lower part of the subsoil and in the substratum and slope

Recreational development

Suitability: Moderately suited
Limitations: Slow permeability in the lower part of the subsoil and in the substratum, slope, and sandy surface and subsurface layers

Interpretive Groups

Land capability classification: Cowarts—IVe; Ailey—VIs
Woodland ordination symbol: Cowarts—9A; Ailey—8S

COD—Cowarts and Ailey soils, 12 to 18 percent slopes

Setting

Landscape position: Hillsides
Surface features: Shallow gullies
Slope class: Moderately steep
Slope topography: Complex
Size of areas: 20 to 150 acres

Composition

Cowarts soil—55 percent
Ailey soil—35 percent
Inclusions—10 percent

Pattern of occurrence: Soils occur in an irregular pattern; both soils are in most areas but not all areas; extent of mapping is sufficient for interpretations of present and predicted uses

Typical Profile

Cowarts

Surface layer:
0 to 4 inches—dark grayish brown loamy sand

Subsurface layer:
4 to 14 inches—brownish yellow loamy sand

Subsoil:
14 to 20 inches—yellowish brown sandy loam
20 to 37 inches—yellowish red sandy clay loam

Substratum:
37 to 80 inches—mottled yellowish red, strong brown, and light gray sandy loam

Ailey

Surface layer:
0 to 9 inches—dark grayish brown loamy coarse sand

Subsurface layer:
9 to 24 inches—yellowish brown loamy sand

Subsoil:
24 to 30 inches—yellowish brown coarse sandy loam
30 to 38 inches—yellowish brown sandy clay loam that has yellowish red mottles
38 to 45 inches—yellowish brown sandy clay loam that has strong brown, red, and yellowish red mottles

Substratum:
45 to 80 inches—red sandy loam that has yellowish brown, strong brown, and light gray mottles

Soil Properties and Qualities

Cowarts

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate in the subsoil and moderately slow or slow in the substratum
Available water capacity: Moderate
Tilth: Good
Root zone: Moderately deep to a compact substratum
Distinctive features: Dense, compact substratum

Ailey

Drainage class: Well drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part of the subsoil and in the substratum
Available water capacity: Low
Tilth: Good
Root zone: Deep to a compact substratum
Distinctive features: Soil is dense and brittle in 10 to 40 percent of the lower part of the subsoil; most of the substratum is compact

Inclusions

- A few small areas of Nankin and Troup soils
- A few small areas of soils that have a surface layer of sandy clay loam

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited

Management concerns: Erosion and slope
Suitable management measures: Water management

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Slope, seedling mortality, and equipment limitations
Suitable management measures: Planting drought-tolerant species; performing management operations on the contour

Urban uses

Suitability: Poorly suited
Limitations: Slope and slow permeability in the lower part of the subsoil and in the substratum

Recreational development

Suitability: Poorly suited
Limitations: Slope

Interpretive Groups

Land capability classification: Cowarts—VIe; Ailey—VIIe
Woodland ordination symbol: Cowarts—9R; Ailey—8S

COE—Cowarts and Ailey soils, 12 to 25 percent slopes

Setting

Landscape position: Hillsides
Surface features: Shallow and deep gullies
Slope class: Moderately steep
Slope topography: Complex
Size of areas: 20 to 80 acres

Composition

Cowarts soil—55 percent
Ailey soil—35 percent
Inclusions—10 percent

Pattern of occurrence: Soils occur in an irregular pattern; both soils are in most areas but not all areas; extent of mapping is sufficient for interpretations of present and predicted uses

Typical Profile

Cowarts

Surface layer:
0 to 4 inches—dark grayish brown loamy sand

Subsurface layer:
4 to 14 inches—brownish yellow loamy sand

Subsoil:
14 to 20 inches—yellowish brown sandy loam
20 to 37 inches—yellowish red sandy clay loam

Substratum:
37 to 80 inches—mottled yellowish red, strong brown, and light gray sandy loam

Ailey

Surface layer:
0 to 9 inches—dark grayish brown loamy coarse sand

Subsurface layer:
9 to 24 inches—yellowish brown loamy sand

Subsoil:
24 to 30 inches—yellowish brown coarse sandy loam
30 to 38 inches—yellowish brown sandy clay loam that has yellowish red mottles
38 to 45 inches—yellowish brown sandy clay loam that has strong brown, red, and yellowish red mottles

Substratum:
45 to 80 inches—red sandy loam that has yellowish brown, strong brown, and light gray mottles

Soil Properties and Qualities

Cowarts

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate in the subsoil and moderately slow or slow in the substratum
Available water capacity: Moderate
Tilth: Good
Root zone: Moderately deep to a compact substratum
Distinctive features: Dense, compact substratum

Ailey

Drainage class: Well drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part of the subsoil and in the substratum
Available water capacity: Low
Tilth: Good
Root zone: Deep to a compact substratum
Distinctive features: Soil is dense and brittle in 10 to 40 percent of the lower part of the subsoil; most of the substratum is compact

Inclusions

- A few small areas of Nankin and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Poorly suited
Suitability for pasture: Poorly suited
Management concerns: Erosion and slope

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Slope, seedling mortality, and equipment limitations
Suitable management measures: Planting drought-tolerant species; performing management operations on the contour

Urban uses

Suitability: Poorly suited
Limitations: Slope and slow permeability in the lower part of the subsoil and in the substratum

Recreational development

Suitability: Poorly suited
Limitations: Slope

Interpretive Groups

Land capability classification: Cowarts—VIe; Ailey—VIIe
Woodland ordination symbol: Cowarts—9R; Ailey—8S

CwE—Cowarts and Ailey soils, 18 to 25 percent slopes

Setting

Landscape position: Hillsides
Surface features: Shallow and deep gullies
Slope class: Moderately steep
Slope topography: Complex
Size of areas: 20 to 80 acres

Composition

Cowarts soil—55 percent
Ailey soil—35 percent
Inclusions—10 percent

Pattern of occurrence: Soils occur in an irregular pattern; both soils are in most areas but not all areas; extent of mapping is sufficient for interpretations of present and predicted uses

Typical Profile

Cowarts

Surface layer:
0 to 4 inches—dark grayish brown loamy sand
Subsurface layer:
4 to 14 inches—brownish yellow loamy sand
Subsoil:
14 to 20 inches—yellowish brown sandy loam
20 to 37 inches—yellowish red sandy clay loam
Substratum:
37 to 80 inches—mottled yellowish red, strong brown, and light gray sandy loam

Ailey

Surface layer:
0 to 9 inches—dark grayish brown loamy coarse sand
Subsurface layer:
9 to 24 inches—yellowish brown loamy sand
Subsoil:
24 to 30 inches—yellowish brown coarse sandy loam
30 to 38 inches—yellowish brown sandy clay loam that has yellowish red mottles
38 to 45 inches—yellowish brown sandy clay loam that has strong brown, red, and yellowish red mottles
Substratum:
45 to 80 inches—red sandy loam that has yellowish brown, strong brown, and light gray mottles

Soil Properties and Qualities

Cowarts

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate in the subsoil and moderately slow or slow in the substratum
Available water capacity: Moderate
Tilth: Good
Root zone: Moderately deep to a compact substratum
Distinctive features: Dense, compact substratum

Ailey

Drainage class: Well drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part of the subsoil and in the substratum
Available water capacity: Low
Tilth: Good
Root zone: Deep to a compact substratum
Distinctive features: Soil is dense and brittle in 10 to 40 percent of the lower part of the subsoil; most of the substratum is compact

Inclusions

- A few small areas of Nankin and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Poorly suited
Suitability for pasture: Poorly suited
Management concerns: Erosion and slope

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine

Management concerns: Slope, seedling mortality, and equipment limitations
Suitable management measures: Planting drought-tolerant species; performing management operations on the contour

Urban uses

Suitability: Poorly suited
Limitations: Slope and slow permeability in the lower part of the subsoil and in the substratum

Recreational development

Suitability: Poorly suited
Limitations: Slope

Interpretive Groups

Land capability classification: VIIe
Woodland ordination symbol: Cowarts—9R; Ailey—8S

DoB—Dothan loamy sand, 2 to 5 percent slopes

Setting

Landscape position: Ridgetops
Slope class: Very gently sloping
Slope topography: Smooth and convex
Size of areas: 5 to 50 acres

Typical Profile

Surface layer:
0 to 10 inches—dark brown loamy sand

Subsoil:
10 to 22 inches—yellowish brown sandy clay loam
22 to 32 inches—yellowish brown sandy clay loam that has yellowish red mottles
32 to 50 inches—yellowish brown sandy clay loam that has strong brown and red mottles
50 to 80 inches—yellowish brown sandy clay loam that has strong brown, red, and pale yellow mottles

Soil Properties and Qualities

Drainage class: Well drained
Depth to high water table: 3 to 5 feet
Organic matter content: Low
Permeability: Moderate in the upper part of the subsoil and moderately slow in the lower part
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Fuquay and Orangeburg soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Well suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Erosion
Suitable management measures: Conservation tillage; cover crops

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: No significant limitations
Suitable management measures: Performing management operations on the contour

Urban uses

Suitability: Well suited
Limitations: Moderately slow permeability in the lower part of the subsoil

Recreational development

Suitability: Well suited
Limitations: Slope

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 9A

DoC—Dothan loamy sand, 5 to 8 percent slopes

Setting

Landscape position: Ridgetops and hillsides
Slope class: Gently sloping
Slope topography: Smooth and convex
Size of areas: 5 to 20 acres

Typical Profile

Surface layer:
0 to 10 inches—dark brown loamy sand

Subsoil:
10 to 22 inches—yellowish brown sandy clay loam
22 to 32 inches—yellowish brown sandy clay loam that has yellowish red mottles
32 to 50 inches—yellowish brown sandy clay loam that has strong brown and red mottles
50 to 80 inches—yellowish brown sandy clay loam that has strong brown, red, and pale yellow mottles

Soil Properties and Qualities

Drainage class: Well drained
Depth to high water table: 3 to 5 feet
Organic matter content: Low
Permeability: Moderate in the upper part of the subsoil and moderately slow in the lower part
Available water capacity: Moderate

Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Fuquay and Orangeburg soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Moderately suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Erosion
Suitable management measures: Conservation tillage; cover crops

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: No significant limitations
Suitable management measures: Performing management operations on the contour

Urban uses

Suitability: Well suited
Limitations: Moderately slow permeability in the lower part of the subsoil and slope

Recreational development

Suitability: Well suited
Limitations: Slope

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 9A

EmB—Esto sandy loam, 2 to 5 percent slopes

Setting

Landscape position: Ridgetops and hillsides
Slope class: Very gently sloping
Slope topography: Smooth and convex
Size of areas: 5 to 40 acres

Typical Profile

Surface layer:
0 to 2 inches—dark grayish brown sandy loam
Subsurface layer:
2 to 8 inches—brownish yellow sandy loam
Subsoil:
8 to 17 inches—yellowish red sandy clay
17 to 38 inches—mottled yellowish red, yellowish brown, and red clay
38 to 60 inches—mottled light gray, light yellowish brown, red, and yellowish brown clay
60 to 78 inches—mottled light brownish gray, red, yellowish brown, and light yellowish brown sandy clay

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Slow
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Ailey, Nankin, and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Moderately suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Erosion
Suitable management measures: Conservation tillage; water management; returning crop residue to the soil

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: No significant limitations
Suitable management measures: Performing management operations on the contour

Urban uses

Suitability: Moderately suited
Limitations: Slow permeability in the subsoil and moderate shrink-swell potential

Recreational development

Suitability: Moderately suited
Limitations: Slow permeability

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8A

EmC—Esto sandy loam, 5 to 8 percent slopes

Setting

Landscape position: Hillsides
Slope class: Gently sloping
Slope topography: Irregular and convex
Size of areas: 5 to 25 acres

Typical Profile

Surface layer:
0 to 2 inches—dark grayish brown sandy loam
Subsurface layer:
2 to 8 inches—brownish yellow sandy loam
Subsoil:
8 to 17 inches—yellowish red sandy clay
17 to 38 inches—mottled yellowish red, yellowish brown, and red clay
38 to 60 inches—mottled light gray, light yellowish brown, red, and yellowish brown clay
60 to 78 inches—mottled light brownish gray, red, yellowish brown, and light yellowish brown sandy clay

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Slow
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Ailey, Nankin, and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Erosion
Suitable management measures: Control of weeds and insects; fertilization programs; grazing systems

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: No significant limitations
Suitable management measures: Performing management operations on the contour

Urban uses

Suitability: Moderately suited
Limitations: Slow permeability in the subsoil, moderate shrink-swell potential, and slope

Recreational development

Suitability: Moderately suited
Limitations: Slow permeability in the subsoil and slope

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 8A

EmD—Esto sandy loam, 8 to 15 percent slopes

Setting

Landscape position: Hillsides
Slope class: Strongly sloping and moderately steep
Slope topography: Irregular and convex
Size of areas: 5 to 25 acres

Typical Profile

Surface layer:
0 to 2 inches—dark grayish brown sandy loam
Subsurface layer:
2 to 8 inches—brownish yellow sandy loam
Subsoil:
8 to 17 inches—yellowish red sandy clay
17 to 38 inches—mottled yellowish red, yellowish brown, and red clay
38 to 60 inches—mottled light gray, light yellowish brown, red, and yellowish brown clay
60 to 78 inches—mottled light brownish gray, red, yellowish brown, and light yellowish brown sandy clay

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Slow
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Ailey, Nankin, and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Erosion
Suitable management measures: Control of weeds and insects; fertilization programs; grazing systems

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: No significant limitations
Suitable management measures: Performing management operations on the contour

Urban uses

Suitability: Moderately suited
Limitations: Slow permeability in the subsoil, moderate shrink-swell potential, and slope

Recreational development

Suitability: Moderately suited
Limitations: Slow permeability in the subsoil and slope

Interpretive Groups

Land capability classification: VIe
Woodland ordination symbol: 8A

EtA—Eunola sandy loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape position: Stream terraces
Flooding: Occasional
Slope class: Nearly level and very gently sloping
Slope topography: Smooth
Size of areas: 10 to 200 acres

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown sandy loam
Subsurface layer:
4 to 10 inches—yellowish brown sandy loam
Subsoil:
10 to 24 inches—yellowish brown sandy clay loam
24 to 54 inches—yellowish brown sandy clay loam that has strong brown and gray mottles
Substratum:
54 to 75 inches—mottled strong brown, light gray, and yellowish red loamy sand

Soil Properties and Qualities

Drainage class: Moderately well drained
Depth to high water table: 1.5 to 2.5 feet
Organic matter content: Low or moderately low
Permeability: Moderate
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Well suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Wetness
Suitable management measures: Drainage systems

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine, slash pine, sweetgum, and yellow-poplar
Management concerns: Wetness and equipment limitations
Suitable management measures: Performing management operations during the drier periods

Urban uses

Suitability: Unsuited
Limitations: Wetness and flooding

Recreational development

Suitability: Moderately suited
Limitations: Wetness and flooding
Suitable management measures: Drainage systems

Interpretive Groups

Land capability classification: IIw
Woodland ordination symbol: 10W

FuB—Fuquay loamy sand, 0 to 5 percent slopes

Setting

Landscape position: Ridgetops and hillsides
Slope class: Nearly level and very gently sloping
Slope topography: Smooth and convex
Size of areas: 10 to 90 acres

Typical Profile

Surface layer:
0 to 10 inches—dark brown loamy sand
Subsurface layer:
10 to 33 inches—yellowish brown sand
Subsoil:
33 to 45 inches—brownish yellow sandy loam that has strong brown mottles
45 to 55 inches—brownish yellow sandy clay loam that has strong brown mottles
55 to 62 inches—mottled strong brown, brownish yellow, and light gray sandy clay loam
62 to 80 inches—mottled strong brown, brownish yellow, red, and light gray sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
High water table: Perched for brief periods at a depth of 4 to 6 feet and above the plinthic zone during wet periods
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part of the subsoil
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Dothan and Lucy soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Moderately suited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Low available water capacity
Suitable management measures: Returning crop residue to the soil

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, longleaf pine, and slash pine
Management concerns: Seedling mortality and equipment limitations
Suitable management measures: Planting drought-tolerant species; performing management operations during the wetter periods

Urban uses

Suitability: Well suited
Limitations: Moderate to slow permeability in the subsoil

Recreational development

Suitability: Moderately suited
Limitations: Sandy texture

Interpretive Groups

Land capability classification: IIs
Woodland ordination symbol: 8S

FuC—Fuquay loamy sand, 5 to 8 percent slopes

Setting

Landscape position: Ridgetops and hillsides
Slope class: Gently sloping
Slope topography: Smooth and convex
Size of areas: 10 to 50 acres

Typical Profile

Surface layer:
0 to 10 inches—dark brown loamy sand
Subsurface layer:
10 to 33 inches—yellowish brown sand
Subsoil:
33 to 45 inches—brownish yellow sandy loam that has strong brown mottles
45 to 55 inches—brownish yellow sandy clay loam that has strong brown mottles
55 to 62 inches—mottled strong brown, brownish yellow, and light gray sandy clay loam
62 to 80 inches—mottled strong brown, brownish yellow, red, and light gray sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
High water table: Perched for brief periods at a depth of 4 to 6 feet and above the plinthic zone during wet periods
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part of the subsoil
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Dothan and Lucy soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Moderately suited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Low available water capacity
Suitable management measures: Returning crop residue to the soil

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, longleaf pine, and slash pine
Management concerns: Seedling mortality and equipment limitations
Suitable management measures: Planting drought-tolerant species; performing management operations during the wetter periods

Urban uses

Suitability: Well suited
Limitations: Moderate to slow permeability in the subsoil and slope

Recreational development

Suitability: Moderately suited
Limitations: Sandy texture and slope

Interpretive Groups

Land capability classification: IIIs
Woodland ordination symbol: 8S

GrA—Greenville sandy loam, 0 to 2 percent slopes

Setting

Landscape position: Broad ridgetops
Slope class: Nearly level

Slope topography: Smooth and convex
Size of areas: 10 to 150 acres

Typical Profile

Surface layer:
0 to 9 inches—dark reddish brown sandy loam
Subsoil:
9 to 14 inches—dark red sandy clay loam
14 to 80 inches—dark red sandy clay

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Orangeburg and Red Bay soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Well suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Suitable management measures: Conservation tillage

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: No significant limitations

Urban uses

Suitability: Well suited
Limitations: Moderate permeability in the subsoil

Recreational development

Suitability: Well suited

Interpretive Groups

Land capability classification: I
Woodland ordination symbol: 8A

GrB—Greenville sandy loam, 2 to 5 percent slopes

Setting

Landscape position: Ridgetops
Slope class: Very gently sloping
Slope topography: Smooth and convex
Size of areas: 10 to 200 acres

Typical Profile

Surface layer:
0 to 9 inches—dark reddish brown sandy loam
Subsoil:
9 to 14 inches—dark red sandy clay loam
14 to 80 inches—dark red sandy clay

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Orangeburg and Red Bay soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Well suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Erosion
Suitable management measures: Conservation tillage; water management; farming on the contour

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: No significant limitations
Suitable management measures: Performing management operations on the contour

Urban uses

Suitability: Well suited
Limitations: Moderate permeability in the subsoil

Recreational development

Suitability: Well suited
Limitations: Slope

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 8A

GvC2—Greenville sandy clay loam, 5 to 8 percent slopes, eroded

Setting

Landscape position: Ridgetops and hillsides
Slope class: Gently sloping
Slope topography: Smooth and convex

Size of areas: 10 to 80 acres

Typical Profile

Surface layer:
0 to 6 inches—dark reddish brown sandy clay loam
Subsoil:
6 to 45 inches—dark red sandy clay
45 to 80 inches—dark red sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate
Available water capacity: High
Surface layer: Eroded; mixture of the original surface layer and the upper part of the subsoil
Tilth: Poor
Root zone: Very deep

Inclusions

- A few small areas of Orangeburg and Red Bay soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Moderately suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Erosion
Suitable management measures: Conservation tillage

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Seedling mortality
Suitable management measures: Proper planting procedures; performing management operations on the contour

Urban uses

Suitability: Well suited
Limitations: Moderate permeability in the subsoil

Recreational development

Suitability: Well suited
Limitations: Slope

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8A

GvD2—Greenville sandy clay loam, 8 to 12 percent slopes, eroded

Setting

Landscape position: Ridgetops and hillsides
Slope class: Strongly sloping
Slope topography: Smooth and convex
Size of areas: 10 to 80 acres

Typical Profile

Surface layer:
0 to 6 inches—dark reddish brown sandy clay loam
Subsoil:
6 to 45 inches—dark red sandy clay
45 to 80 inches—dark red sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate
Available water capacity: High
Surface layer: Eroded; mixture of the original surface layer and the upper part of the subsoil
Tilth: Poor
Root zone: Very deep

Inclusions

- A few small areas of Orangeburg and Red Bay soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Moderately suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Erosion
Suitable management measures: Conservation tillage

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Seedling mortality
Suitable management measures: Proper planting procedures; performing management operations on the contour; special care in site preparation

Urban uses

Suitability: Moderately suited
Limitations: Moderately slow permeability in the subsoil and slope

Recreational development

Suitability: Moderately suited
Limitations: Slope

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 8A

Iu—Iuka sandy loam, occasionally flooded

Setting

Landscape position: Flood plains
Flooding: Occasional
Slope class: Nearly level
Slope topography: Smooth and concave
Size of areas: 20 to 200 acres

Typical Profile

Surface layer:
0 to 5 inches—brown sandy loam
Underlying material:
5 to 8 inches—yellowish brown sandy loam that has reddish brown mottles
8 to 36 inches—yellowish brown sandy loam that has light brownish gray, reddish brown, and red mottles
36 to 80 inches—light brownish gray sandy loam that has yellowish brown and reddish yellow mottles

Soil Properties and Qualities

Drainage class: Moderately well drained
Depth to high water table: 1 to 3 feet
Organic matter content: Low or moderately low
Permeability: Moderate
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

• A few small areas of Bibb and Ochlockonee soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Wetness and flooding
Suitable management measures: Water management

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine, sweetgum, and yellow-poplar
Management concerns: Seasonal wetness, flooding, and seedling mortality
Suitable management measures: Performing management operations during the drier periods

Urban uses

Suitability: Unsuited
Limitations: Flooding

Recreational development

Suitability: Poorly suited
Limitations: Wetness and flooding

Interpretive Groups

Land capability classification: IIw
Woodland ordination symbol: 9W

LaB—Lakeland sand, 0 to 5 percent slopes

Setting

Landscape position: Ridgetops and hillsides
Slope class: Nearly level and very gently sloping
Slope topography: Smooth and convex
Size of areas: 30 to 200 acres

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown sand
Underlying material:
4 to 60 inches—strong brown sand
60 to 80 inches—reddish yellow sand

Soil Properties and Qualities

Drainage class: Excessively drained
Organic matter content: Low
Permeability: Rapid
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

• A few small areas of Lucy and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Poorly suited
Suitability for pasture: Poorly suited
Management concerns: Low available water capacity
Suitable management measures: Water management; returning crop residue to the soil

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Seedling mortality and equipment limitations
Suitable management measures: Planting drought-tolerant species; performing management operations during the wetter periods

Urban uses

Suitability: Well suited
Limitations: Seepage that affects some sanitary facilities

Recreational development

Suitability: Poorly suited
Limitations: Sandy texture

Interpretive Groups

Land capability classification: IVs
Woodland ordination symbol: 9S

LaC—Lakeland sand, 5 to 12 percent slopes

Setting

Landscape position: Hillsides
Slope class: Gently sloping and strongly sloping
Slope topography: Smooth and convex
Size of areas: 30 to 200 acres

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown sand
Underlying material:
4 to 60 inches—strong brown sand
60 to 80 inches—reddish yellow sand

Soil Properties and Qualities

Drainage class: Excessively drained
Organic matter content: Low
Permeability: Rapid
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Lucy and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Poorly suited
Suitability for pasture: Poorly suited
Management concerns: Low available water capacity
Suitable management measures: Water management; returning crop residue to the soil

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Seedling mortality and equipment limitations
Suitable management measures: Planting drought-tolerant species; performing management operations during the wetter periods

Urban uses

Suitability: Moderately suited
Limitations: Slope and seepage that affects some sanitary facilities

Recreational development

Suitability: Poorly suited
Limitations: Sandy texture

Interpretive Groups

Land capability classification: VIs
Woodland ordination symbol: 9S

LaD—Lakeland sand, 12 to 18 percent slopes

Setting

Landscape position: Hillsides
Landscape features: Shallow and deep gullies
Slope class: Moderately steep
Slope topography: Smooth and convex
Size of areas: 10 to 50 acres

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown sand
Underlying material:
4 to 60 inches—strong brown sand
60 to 80 inches—reddish yellow sand

Soil Properties and Qualities

Drainage class: Excessively drained
Organic matter content: Low
Permeability: Rapid
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Lucy and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Poorly suited
Suitability for pasture: Poorly suited
Management concerns: Low available water capacity and slope
Suitable management measures: Water management

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Seedling mortality and equipment limitations
Suitable management measures: Planting drought-

tolerant species; performing management operations during the wetter periods

Urban uses

Suitability: Poorly suited
Limitations: Slope and seepage that affects some sanitary facilities

Recreational development

Suitability: Poorly suited
Limitations: Sandy texture and slope

Interpretive Groups

Land capability classification: VIIs
Woodland ordination symbol: 9S

LaE—Lakeland sand, 12 to 25 percent slopes

Setting

Landscape position: Hillsides
Landscape features: Shallow and deep gullies
Slope class: Moderately steep
Slope topography: Irregular and convex
Size of areas: 10 to 50 acres

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown sand
Underlying material:
4 to 60 inches—strong brown sand
60 to 80 inches—reddish yellow sand

Soil Properties and Qualities

Drainage class: Excessively drained
Organic matter content: Low
Permeability: Rapid
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Lucy and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Poorly suited
Suitability for pasture: Poorly suited
Management concerns: Low available water capacity and slope
Suitable management measures: Performing management operations on the contour

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Seedling mortality and equipment limitations
Suitable management measures: Planting adapted, drought-tolerant species; performing management operations during the wetter periods

Urban uses

Suitability: Poorly suited
Limitations: Slope and seepage that affects some sanitary facilities

Recreational development

Suitability: Poorly suited
Limitations: Sandy texture and slope

Interpretive Groups

Land capability classification: VIIs
Woodland ordination symbol: 9S

LkE—Lakeland sand, 18 to 25 percent slopes

Setting

Landscape position: Hillsides
Landscape features: Shallow and deep gullies
Slope class: Moderately steep
Slope topography: Irregular and convex
Size of areas: 10 to 50 acres

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown sand
Underlying material:
4 to 60 inches—strong brown sand
60 to 80 inches—reddish yellow sand

Soil Properties and Qualities

Drainage class: Excessively drained
Organic matter content: Low
Permeability: Rapid
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Lucy and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Poorly suited
Suitability for pasture: Poorly suited

Management concerns: Low available water capacity and slope

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Seedling mortality and equipment limitations
Suitable management measures: Planting adapted, drought-tolerant species; performing management operations during the wetter periods

Urban uses

Suitability: Poorly suited
Limitations: Slope and seepage that affects some sanitary facilities

Recreational development

Suitability: Poorly suited
Limitations: Sandy texture and slope

Interpretive Groups

Land capability classification: VIIs
Woodland ordination symbol: 9S

LuB—Lucy loamy sand, 0 to 5 percent slopes

Setting

Landscape position: Broad ridgetops
Slope class: Nearly level and very gently sloping
Slope topography: Smooth and convex
Size of areas: 10 to 75 acres

Typical Profile

Surface layer:
0 to 10 inches—dark brown loamy sand

Subsurface layer:
10 to 26 inches—strong brown loamy sand

Subsoil:
26 to 36 inches—yellowish red sandy loam
36 to 80 inches—red sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers and moderate in the subsoil
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

• A few small areas of Lakeland, Orangeburg, and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Moderately suited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Low available water capacity
Suitable management measures: Returning crop residue to the soil; water management

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Equipment limitations and seedling mortality
Suitable management measures: Planting adapted, drought-tolerant species; performing management operations during the wetter periods

Urban uses

Suitability: Well suited

Recreational development

Suitability: Moderately suited
Limitations: Sandy texture

Interpretive Groups

Land capability classification: IIs
Woodland ordination symbol: 8S

LuC—Lucy loamy sand, 5 to 8 percent slopes

Setting

Landscape position: Hillsides
Slope class: Gently sloping
Slope topography: Smooth and convex
Size of areas: 10 to 50 acres

Typical Profile

Surface layer:
0 to 10 inches—dark brown loamy sand

Subsurface layer:
10 to 26 inches—strong brown loamy sand

Subsoil:
26 to 36 inches—yellowish red sandy loam
36 to 80 inches—red sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained

Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers and moderate in the subsoil
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

• A few small areas of Lakeland, Orangeburg, and Troup soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Moderately suited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Slope and low available water capacity
Suitable management measures: Returning crop residue to the soil; water management; performing management operations on the contour

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Equipment limitations and seedling mortality
Suitable management measures: Planting adapted, drought-tolerant species; performing management operations during the wetter periods

Urban uses

Suitability: Well suited
Limitations: Slope

Recreational development

Suitability: Moderately suited
Limitations: Slope and sandy texture

Interpretive Groups

Land capability classification: IIIs
Woodland ordination symbol: 8S

NaB—Nankin sandy loam, 2 to 5 percent slopes

Setting

Landscape position: Ridgetops
Slope class: Very gently sloping
Slope topography: Smooth and convex
Size of areas: 10 to 90 acres

Typical Profile

Surface layer:
0 to 5 inches—yellowish brown sandy loam

Subsoil:
5 to 12 inches—yellowish red sandy clay loam
12 to 30 inches—yellowish red sandy clay that has strong brown mottles
30 to 44 inches—strong brown and yellowish red sandy clay loam that has light gray mottles
44 to 60 inches—mottled yellowish red, light gray, and strong brown sandy clay loam

Substratum:
60 to 80 inches—mottled light gray, yellowish red, and strong brown sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderately slow
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

• A few small areas of Orangeburg and Vaucluse soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Well suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Erosion
Suitable management measures: Conservation tillage; water management

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine and slash pine
Management concerns: No significant limitations
Suitable management measures: Performing management operations on the contour

Urban uses

Suitability: Well suited
Limitations: Moderately slow permeability in the subsoil

Recreational development

Suitability: Moderately suited
Limitations: Moderately slow permeability in the subsoil

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 8A

NaC—Nankin sandy loam, 5 to 12 percent slopes

Setting

Landscape position: Narrow ridgetops and hillsides

Slope class: Gently sloping and strongly sloping
Slope topography: Irregular and convex
Size of areas: 10 to 50 acres

Typical Profile

Surface layer:
0 to 5 inches—yellowish brown sandy loam

Subsoil:
5 to 12 inches—yellowish red sandy clay loam
12 to 30 inches—yellowish red sandy clay that has strong brown mottles
30 to 44 inches—strong brown and yellowish red sandy clay loam that has light gray mottles
44 to 60 inches—mottled yellowish red, light gray, and strong brown sandy clay loam

Substratum:
60 to 80 inches—mottled light gray, yellowish red, and strong brown sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderately slow
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Orangeburg and Vaucluse soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Poorly suited
Suitability for pasture: Moderately suited
Management concerns: Erosion
Suitable management measures: Conservation tillage; returning crop residue to the soil

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine and slash pine
Management concerns: No significant limitations
Suitable management measures: Performing management operations on the contour

Urban uses

Suitability: Moderately suited
Limitations: Moderately slow permeability in the subsoil and slope

Recreational development

Suitability: Moderately suited
Limitations: Slope and moderately slow permeability in the subsoil

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 8A

NkC3—Nankin sandy clay loam, 5 to 12 percent slopes, severely eroded

Setting

Landscape position: Narrow ridgetops and hillsides
Slope class: Gently sloping and strongly sloping
Slope topography: Irregular and convex
Size of areas: 10 to 25 acres

Typical Profile

Surface layer:
0 to 3 inches—brown sandy clay loam

Subsoil:
3 to 8 inches—yellowish red sandy clay
8 to 25 inches—yellowish red sandy clay that has yellowish brown and red mottles
25 to 45 inches—mottled strong brown, light gray, red, and yellowish brown sandy clay

Substratum:
45 to 58 inches—mottled strong brown, light gray, and red sandy clay loam
58 to 80 inches—mottled red, light gray, and strong brown sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderately slow
Available water capacity: Moderate
Surface layer: Eroded; mixture of the original surface layer and the upper part of the subsoil; erosion has removed original surface layer in some areas
Tilth: Poor
Root zone: Very deep

Inclusions

- A few small areas of Orangeburg soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Poorly suited
Suitability for pasture: Moderately suited
Management concerns: Erosion and slope

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine and slash pine
Management concerns: No significant limitations

Suitable management measures: Performing management operations on the contour

Urban uses

Suitability: Moderately suited
Limitations: Moderately slow permeability in the subsoil and slope

Recreational development

Suitability: Moderately suited
Limitations: Slope and moderately slow permeability in the subsoil

Interpretive Groups

Land capability classification: VIe
Woodland ordination symbol: 8A

NkD3—Nankin sandy clay loam, 12 to 18 percent slopes, severely eroded

Setting

Landscape position: Hillsides
Slope class: Moderately steep
Slope topography: Irregular and convex
Size of areas: 10 to 50 acres

Typical Profile

Surface layer:
0 to 3 inches—brown sandy clay loam

Subsoil:
3 to 8 inches—yellowish red sandy clay
8 to 25 inches—yellowish red sandy clay that has yellowish brown and red mottles
25 to 45 inches—mottled strong brown, light gray, red, and yellowish brown sandy clay

Substratum:
45 to 58 inches—mottled strong brown, light gray, and red sandy clay loam
58 to 80 inches—mottled red, light gray, and strong brown sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderately slow
Available water capacity: Moderate
Surface layer: Eroded; mixture of the original surface layer and the upper part of the subsoil; erosion has removed original surface layer in some areas
Tilth: Poor
Root zone: Very deep

Inclusions

- A few small areas of Cowarts and Esto soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Poorly suited
Suitability for pasture: Moderately suited
Management concerns: Erosion and slope

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine and slash pine
Management concerns: Erosion, equipment limitations, and seedling mortality
Suitable management measures: Performing management operations on the contour and during the drier periods; proper planting procedures

Urban uses

Suitability: Poorly suited
Limitations: Slope and moderately slow permeability in the subsoil

Recreational development

Suitability: Poorly suited
Limitations: Slope and moderately slow permeability in the subsoil

Interpretive Groups

Land capability classification: VIe
Woodland ordination symbol: 8R

NkE3—Nankin sandy clay loam, 12 to 25 percent slopes, severely eroded

Setting

Landscape position: Hillsides
Landscape features: Shallow and deep gullies
Slope class: Moderately steep
Slope topography: Irregular and convex
Size of areas: 10 to 50 acres

Typical Profile

Surface layer:
0 to 3 inches—brown sandy clay loam

Subsoil:
3 to 8 inches—yellowish red sandy clay
8 to 25 inches—yellowish red sandy clay that has yellowish brown and red mottles
25 to 45 inches—mottled strong brown, light gray, red, and yellowish brown sandy clay

Substratum:
45 to 58 inches—mottled strong brown, light gray, and red sandy clay loam
58 to 80 inches—mottled red, light gray, and strong brown sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderately slow
Available water capacity: Moderate
Surface layer: Eroded; mixture of the original surface layer and the upper part of the subsoil; erosion has removed original surface layer in some areas
Tilth: Poor
Root zone: Very deep

Inclusions

- A few small areas of Orangeburg and Vaucluse soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Poorly suited
Suitability for pasture: Moderately suited
Management concerns: Erosion and slope
Suitable management measures: Planting grasses and legumes

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine and slash pine
Management concerns: Erosion, equipment limitations, and seedling mortality
Suitable management measures: Performing management operations on the contour and during the drier periods; proper planting procedures

Urban uses

Suitability: Poorly suited
Limitations: Slope and moderately slow permeability in the subsoil

Recreational development

Suitability: Poorly suited
Limitations: Slope and moderately slow permeability in the subsoil

Interpretive Groups

Land capability classification: VIe
Woodland ordination symbol: 8R

NnE3—Nankin sandy clay loam, 18 to 25 percent slopes, severely eroded

Setting

Landscape position: Hillsides
Landscape features: Shallow and deep gullies
Slope class: Moderately steep
Slope topography: Irregular and convex
Size of areas: 10 to 30 acres

Typical Profile

Surface layer:
0 to 3 inches—brown sandy clay loam
Subsoil:
3 to 8 inches—yellowish red sandy clay
8 to 25 inches—yellowish red sandy clay that has yellowish brown and red mottles
25 to 45 inches—mottled strong brown, light gray, red, and yellowish brown sandy clay
Substratum:
45 to 58 inches—mottled strong brown, light gray, and red sandy clay loam
58 to 80 inches—mottled red, light gray, and strong brown sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderately slow
Available water capacity: Moderate
Surface layer: Eroded; mixture of the original surface layer and the upper part of the subsoil; erosion has removed original surface layer in some areas
Tilth: Poor
Root zone: Very deep

Inclusions

- A few small areas of Cowarts and Esto soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Unsuited
Suitability for pasture: Moderately suited
Management concerns: Erosion and slope
Suitable management measures: Planting grasses and legumes

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine and slash pine
Management concerns: Erosion, equipment limitations, and seedling mortality
Suitable management measures: Performing management operations on the contour and during the drier periods; proper planting procedures

Urban uses

Suitability: Poorly suited
Limitations: Slope and moderately slow permeability in the subsoil

Recreational development

Suitability: Poorly suited
Limitations: Slope and moderately slow permeability in the subsoil

Interpretive Groups

Land capability classification: VIe
Woodland ordination symbol: 8R

NnF3—Nankin sandy clay loam, 25 to 35 percent slopes, severely eroded

Setting

Landscape position: Hillsides
Landscape features: Rills, galled spots, and deep gullies
Slope class: Steep
Slope topography: Irregular and convex
Size of areas: 10 to 30 acres

Typical Profile

Surface layer:
0 to 3 inches—brown sandy clay loam
Subsoil:
3 to 8 inches—yellowish red sandy clay
8 to 25 inches—yellowish red sandy clay that has yellowish brown and red mottles
25 to 45 inches—mottled strong brown, light gray, and red sandy clay
Substratum:
45 to 58 inches—mottled strong brown, light gray, and red sandy clay loam
58 to 80 inches—mottled red, light gray, and strong brown sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderately slow
Available water capacity: Moderate
Surface layer: Eroded; mixture of the original surface layer and the upper part of the subsoil; erosion has removed original surface layer in some areas
Tilth: Poor
Root zone: Very deep

Inclusions

• A few small areas of Cowarts and Esto soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Unsuited
Suitability for pasture: Poorly suited
Management concerns: Erosion and slope
Suitable management measures: Planting grasses and legumes

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine and slash pine
Management concerns: Erosion, equipment limitations, and seedling mortality
Suitable management measures: Performing management operations on the contour and during the drier periods; proper planting procedures

Urban uses

Suitability: Poorly suited
Limitations: Slope

Recreational development

Suitability: Poorly suited
Limitations: Slope

Interpretive Groups

Land capability classification: VIIe
Woodland ordination symbol: 8R

Oc—Ochlockonee sandy loam, rarely flooded

Setting

Landscape position: Flood plains
Flooding: Rare
Slope class: Nearly level and very gently sloping
Slope topography: Smooth
Size of areas: 10 to 100 acres

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown sandy loam
Underlying material:
5 to 10 inches—brownish yellow sandy loam
10 to 18 inches—strong brown silt loam
18 to 40 inches—yellowish brown sandy loam
40 to 80 inches—brownish yellow loamy sand that has thin strata of light gray sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Depth to high water table: 3 to 5 feet
Organic matter content: Low or moderately low
Permeability: Moderate
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

• A few small areas of Bibb and Chastain soils in the lower areas on flood plains

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Well suited

Suitability for hay: Well suited
Suitability for pasture: Well suited

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine and yellow-poplar
Management concerns: No significant limitations

Urban uses

Suitability: Unsuited
Limitations: Flooding and wetness

Recreational development

Suitability: Moderate
Limitations: Flooding
Suitable management measures: Water management

Interpretive Groups

Land capability classification: I
Woodland ordination symbol: 11A

OrB—Orangeburg loamy sand, 2 to 5 percent slopes

Setting

Landscape position: Ridgetops
Slope class: Very gently sloping
Slope topography: Smooth and convex
Size of areas: 10 to 200 acres

Typical Profile

Surface layer:
0 to 8 inches—dark brown loamy sand
Subsoil:
8 to 15 inches—yellowish red sandy clay loam
15 to 80 inches—red sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Lucy soils
- A few small areas of soils that have a surface layer of sandy clay loam

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Well suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Erosion
Suitable management measures: Conservation tillage; water management

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine and slash pine
Management concerns: No significant limitations

Urban uses

Suitability: Well suited

Recreational development

Suitability: Well suited

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 8A

OrC—Orangeburg loamy sand, 5 to 8 percent slopes

Setting

Landscape position: Hillsides
Landscape features: Few galled spots and shallow gullies
Slope class: Gently sloping
Slope topography: Smooth and convex
Size of areas: 5 to 20 acres

Typical Profile

Surface layer:
0 to 8 inches—dark brown loamy sand
Subsoil:
8 to 15 inches—yellowish red sandy clay loam
15 to 80 inches—red sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Lucy soils
- A few small areas of soils that have a surface layer of sandy clay loam

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Well suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Erosion

Suitable management measures: Conservation tillage; water management

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine and slash pine
Management concerns: No significant limitations
Suitable management measures: Performing management operations on the contour

Urban uses

Suitability: Well suited
Limitations: Slope

Recreational development

Suitability: Well suited
Limitations: Slope

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8A

OrD2—Orangeburg sandy loam, 8 to 12 percent slopes, eroded

Setting

Landscape position: Hillsides
Landscape features: Galled spots and a few scattered gullies
Slope class: Strongly sloping
Slope topography: Irregular and convex
Size of areas: 5 to 60 acres

Typical Profile

Surface layer:
0 to 3 inches—dark reddish brown sandy loam

Subsoil:
3 to 12 inches—red sandy clay loam
12 to 80 inches—red sandy clay loam that has strong brown mottles

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate
Available water capacity: Moderate
Surface layer: Eroded; mixture of the original surface layer and the upper part of the subsoil
Tilth: Fair
Root zone: Very deep

Inclusions

• A few small areas of Vaucluse soils
• A few small areas of soils that have a surface layer of sandy clay loam
• A few small areas of soils that have a surface layer of loamy sand

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Poorly suited
Suitability for pasture: Moderately suited
Management concerns: Erosion and slope
Suitable management measures: Conservation tillage; water management

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine and slash pine
Management concerns: No significant limitations
Suitable management measures: Performing management operations on the contour

Urban uses

Suitability: Moderately suited
Limitations: Slope

Recreational development

Suitability: Moderately suited
Limitations: Slope

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 8A

OuB—Orangeburg-Urban land complex, 2 to 5 percent slopes

Setting

Landscape position: Ridgetops
Landscape features: Areas modified by cutting, filling, and reshaping
Slope class: Very gently sloping
Slope topography: Convex
Size of areas: 5 to 100 acres

Composition

Orangeburg soil—55 percent
Urban land—45 percent

Pattern of occurrence: Orangeburg soil and Urban land occur as areas too intermingled to be mapped separately at the scale selected

Typical Profile

Orangeburg

Surface layer:
0 to 8 inches—dark brown loamy sand

Subsoil:
8 to 15 inches—yellowish red sandy clay loam
15 to 80 inches—red sandy clay loam

Soil Properties and Qualities

Orangeburg

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Use and Management

Major uses: Mostly urban development, which includes business districts, cemeteries, parking lots, industries, hospitals, schools, and housing; few small wooded areas and lawns

Urban uses

Suitability: Well suited

Recreational development

Suitability: Well suited
Limitations: Slope

Interpretive Groups

Land capability classification: Orangeburg—IIe; Urban land—none assigned
Woodland ordination symbol: None assigned

Ps—Psamments

Setting

Landscape position: Uplands
Landscape features: Areas modified by cutting, filling, and shaping in the construction of helicopter landing sites and firing ranges for arms and light explosives
Slope class: Nearly level to strongly sloping
Slope topography: Convex and irregular; escarpments in places
Size of areas: 10 to 80 acres
Distinctive features: In many areas the soil material has been completely excavated to a depth of 4 to 15 feet

Soil Material

0 to 4 inches—dark grayish brown sand
4 to 80 inches—strong brown sand

Use and Management

Major uses: Borrow areas, firing ranges, landing sites, and idle land

Urban uses

Suitability: Poorly suited
Limitations: Erosion
Suitable management measures: Establishing a vegetative cover

Interpretive Groups

Land capability classification: None assigned
Woodland ordination symbol: None assigned

ReB—Red Bay loamy sand, 2 to 5 percent slopes

Setting

Landscape position: Broad ridgetops
Slope class: Very gently sloping
Slope topography: Smooth and convex
Size of areas: 10 to 100 acres

Typical Profile

Surface layer:
0 to 8 inches—dark reddish brown loamy sand
Subsoil:
8 to 80 inches—dark red sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Greenville soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Well suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Erosion
Suitable management measures: Conservation tillage; water management

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: No significant limitations

Urban uses

Suitability: Well suited

Recreational development

Suitability: Well suited

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 9A

ReC—Red Bay loamy sand, 5 to 8 percent slopes

Setting

Landscape position: Ridgetops and hillsides
Slope class: Gently sloping
Slope topography: Smooth and convex
Size of areas: 10 to 70 acres

Typical Profile

Surface layer:
0 to 8 inches—dark reddish brown loamy sand

Subsoil:
8 to 80 inches—dark red sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

• A few small areas of Greenville soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Well suited
Suitability for hay: Well suited
Suitability for pasture: Well suited
Management concerns: Erosion
Suitable management measures: Conservation tillage; water management

Woodland

Potential productivity: High
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: No significant limitations
Suitable management measures: Performing management operations on the contour

Urban uses

Suitability: Well suited
Limitations: Slope

Recreational development

Suitability: Well suited
Limitations: Slope

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 9A

TrB—Troup loamy sand, 2 to 5 percent slopes

Setting

Landscape position: Broad ridgetops
Slope class: Very gently sloping
Slope topography: Smooth and convex
Size of areas: 30 to 500 acres

Typical Profile

Surface layer:
0 to 4 inches—brown loamy sand

Subsurface layer:
4 to 16 inches—light yellowish brown loamy sand
16 to 68 inches—yellowish red sand

Subsoil:
68 to 78 inches—red sandy loam
78 to 80 inches—red sandy clay loam

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers and moderate in the subsoil
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

• A few small areas of soils that have a high water table at a depth of 40 to 60 inches, in the slightly lower landscape positions

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Poorly suited
Suitability for pasture: Poorly suited
Management concerns: Low available water capacity
Suitable management measures: Conservation tillage (fig. 3); water management; returning crop residue to the soil

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, longleaf pine, and slash pine
Management concerns: Equipment limitations and seedling mortality

Figure 3.—No-till soybeans in wheat stubble in an area of Troup loamy sand, 2 to 5 percent slopes.

Suitable management measures: Planting drought-tolerant species using proper planting procedures; performing management operations during the wetter periods

Urban uses

Suitability: Well suited

Limitations: Seepage that affects some sanitary facilities

Recreational development

Suitability: Poorly suited
Limitations: Sandy texture

Interpretive Groups

Land capability classification: IIIs
Woodland ordination symbol: 8S

TrC—Troup loamy sand, 5 to 12 percent slopes

Setting

Landscape position: Narrow ridgetops and long, broad hillsides
Slope class: Gently sloping and strongly sloping
Slope topography: Smooth and convex
Size of areas: 10 to 200 acres

Typical Profile

Surface layer:
0 to 4 inches—brown loamy sand

Subsurface layer:
4 to 16 inches—light yellowish brown loamy sand
16 to 68 inches—yellowish red sand

Subsoil:
68 to 78 inches—red sandy loam
78 to 80 inches—red sandy clay loam

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers and moderate in the subsoil
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

• A few small areas of Lakeland, Lucy, and Orangeburg soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Poorly suited
Suitability for pasture: Poorly suited
Management concerns: Low available water capacity and slope
Suitable management measures: Conservation tillage; water management; returning crop residue to the soil

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, longleaf pine, and slash pine
Management concerns: Equipment limitations and seedling mortality
Suitable management measures: Planting drought-tolerant species using proper planting procedures; performing management operations during the wetter periods

Urban uses

Suitability: Well suited
Limitations: Slope and seepage that affects some sanitary facilities

Recreational development

Suitability: Poorly suited
Limitations: Sandy texture and slope

Interpretive Groups

Land capability classification: VIs
Woodland ordination symbol: 8S

TrD—Troup loamy sand, 12 to 18 percent slopes

Setting

Landscape position: Hillsides
Landscape features: Shallow and deep gullies in most areas
Slope class: Moderately steep
Slope topography: Smooth and convex
Size of areas: 10 to 75 acres

Typical Profile

Surface layer:
0 to 4 inches—brown loamy sand

Subsurface layer:
4 to 16 inches—light yellowish brown loamy sand
16 to 68 inches—yellowish red sand

Subsoil:
68 to 78 inches—red sandy loam
78 to 80 inches—red sandy clay loam

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers and moderate in the subsoil
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

• A few small areas of Lakeland and Lucy soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Unsuited
Suitability for pasture: Poorly suited
Management concerns: Slope and low available water capacity
Suitable management measures: Planting grasses and legumes

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, longleaf pine, and slash pine
Management concerns: Equipment limitations, seedling mortality, and erosion
Suitable management measures: Planting drought-tolerant species using proper planting procedures; performing management operations during the wetter periods and on the contour

Urban uses

Suitability: Poorly suited
Limitations: Slope and seepage that affects some sanitary facilities

Recreational development

Suitability: Poorly suited
Limitations: Slope and sandy texture

Interpretive Groups

Land capability classification: VIs
Woodland ordination symbol: 8R

TrE—Troup loamy sand, 12 to 25 percent slopes

Setting

Landscape position: Hillsides
Landscape features: Shallow and deep gullies in most areas
Slope class: Moderately steep
Slope topography: Smooth and convex
Size of areas: 10 to 75 acres

Typical Profile

Surface layer:
0 to 4 inches—brown loamy sand
Subsurface layer:
4 to 16 inches—light yellowish brown loamy sand
16 to 68 inches—yellowish red sand
Subsoil:
68 to 78 inches—red sandy loam
78 to 80 inches—red sandy clay loam

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers and moderate in the subsoil
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Lakeland and Lucy soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Unsuited
Suitability for pasture: Poorly suited
Management concerns: Slope and low available water capacity
Suitable management measures: Planting grasses and legumes

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, longleaf pine, and slash pine
Management concerns: Equipment limitations, seedling mortality, and erosion
Suitable management measures: Planting drought-tolerant species using proper planting procedures; performing management operations during the wetter periods and on the contour

Urban uses

Suitability: Poorly suited
Limitations: Slope and seepage that affects some sanitary facilities

Recreational development

Suitability: Poorly suited
Limitations: Slope and sandy texture

Interpretive Groups

Land capability classification: VIIe
Woodland ordination symbol: 8R

TuE—Troup loamy sand, 18 to 25 percent slopes

Setting

Landscape position: Hillsides
Landscape features: Shallow and deep gullies in most areas
Slope class: Moderately steep

Slope topography: Smooth and convex
Size of areas: 10 to 75 acres

Typical Profile

Surface layer:
0 to 4 inches—brown loamy sand

Subsurface layer:
4 to 16 inches—light yellowish brown loamy sand
16 to 68 inches—yellowish red sand

Subsoil:
68 to 78 inches—red sandy loam
78 to 80 inches—red sandy clay loam

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers and moderate in the subsoil
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Lakeland and Lucy soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Unsuited
Suitability for pasture: Moderately suited
Management concerns: Slope and low available water capacity
Suitable management measures: Planting grasses and legumes

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, longleaf pine, and slash pine
Management concerns: Equipment limitations, seedling mortality, and erosion
Suitable management measures: Planting drought-tolerant species using proper planting procedures; performing management operations during the wetter periods and on the contour

Urban uses

Suitability: Poorly suited
Limitations: Slope and seepage that affects some sanitary facilities

Recreational development

Suitability: Poorly suited
Limitations: Slope and sandy texture

Interpretive Groups

Land capability classification: VIIe
Woodland ordination symbol: 8R

Ua—Udorthents, loamy

Setting

Landscape position: Uplands
Landscape features: Areas modified by cutting, filling, and shaping in the construction of helicopter landing sites and firing ranges for arms and light explosives
Slope class: Nearly level to strongly sloping
Slope topography: Convex and irregular; escarpments in places
Size of areas: 10 to 80 acres

Use and Management

Major uses: Borrow areas, firing ranges, landing sites, and idle land

Urban uses

Suitability: Poorly suited
Limitations: Erosion
Suitable management measures: Establishing a vegetative cover

Interpretive Groups

Land capability classification: None assigned
Woodland ordination symbol: None assigned

Ub—Udorthents-Urban land complex, 0 to 10 percent slopes

Setting

Landscape position: Ridgetops
Landscape features: Some areas altered by cutting, filling, and shaping; in some areas the soil has been removed to a depth of 2 to 5 feet
Slope class: Nearly level to strongly sloping
Slope topography: Convex and irregular
Size of areas: 5 to 200 acres

Composition

Udorthents—55 percent
Urban land—45 percent

Pattern of occurrence: Udorthents and Urban land occur as areas too intermingled to be mapped separately at the scale selected

Use and Management

Major uses: Mostly urban development, which includes runways, towers, parking lots, offices, and storage and maintenance buildings

Urban uses

Suitability: Well suited
Limitations: Erosion
Suitable management measures: Establishing a vegetative cover

Interpretive Groups

Land capability classification: None assigned
Woodland ordination symbol: None assigned

UdC—Urban land, 0 to 10 percent slopes

Setting

Landscape position: Ridgetops and hillsides with associated drainageways and flood plains in the metropolitan areas of Buena Vista, Cusseta, and Fort Benning Military Reservation
Landscape features: Areas modified by cutting, filling, shaping, smoothing, and paving
Slope class: Nearly level to strongly sloping
Size of areas: 10 to 200 acres

Use and Management

Major uses: Mostly urban development, which includes business districts, cemeteries, parking lots, industries, hospitals, schools, and housing; few small wooded areas and lawns

Interpretive Groups

Land capability classification: None assigned
Woodland ordination symbol: None assigned

UoC—Urban land-Orangeburg complex, 0 to 10 percent slopes

Setting

Landscape position: Ridgetops
Landscape features: Areas modified by cutting, filling, and reshaping
Slope class: Nearly level to strongly sloping
Slope topography: Convex
Size of areas: 20 to 200 acres

Composition

Urban land—50 percent
Orangeburg soil—40 percent
Inclusions—10 percent

Pattern of occurrence: Urban land and Orangeburg soil occur as areas too intermingled to be mapped separately at the scale selected

Typical Profile

Orangeburg

Surface layer:
0 to 8 inches—dark brown loamy sand

Subsoil:
8 to 15 inches—yellowish red sandy clay loam
15 to 80 inches—red sandy clay loam

Soil Properties and Qualities

Orangeburg

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate
Available water capacity: Moderate
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Nankin soils

Use and Management

Major uses: Mostly urban development, which includes business districts, cemeteries, parking lots, industries, hospitals, schools, and housing; few small wooded areas and lawns

Urban uses

Suitability: Well suited
Limitations: Slope

Recreational development

Suitability: Well suited
Limitations: Slope

Interpretive Groups

Land capability classification: Urban land—none assigned; Orangeburg—IIIe
Woodland ordination symbol: None assigned

UtC—Urban land-Troup complex, 0 to 10 percent slopes

Setting

Landscape position: Ridgetops
Landscape features: Areas modified by cutting, filling, and reshaping
Slope class: Nearly level to strongly sloping
Slope topography: Convex
Size of areas: 20 to 200 acres

Composition

Urban land—50 percent
Troup soil—40 percent
Inclusions—10 percent

Pattern of occurrence: Urban land and Troup soil occur as areas too intermingled to be mapped separately at the scale selected

Typical Profile

Troup

Surface layer:
0 to 4 inches—brown loamy sand

Subsurface layer:
4 to 16 inches—light yellowish brown loamy sand
16 to 68 inches—yellowish red sand

Subsoil:
68 to 78 inches—red sandy loam
78 to 80 inches—red sandy clay loam

Soil Properties and Qualities

Troup

Drainage class: Somewhat excessively drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers and moderate in the subsoil
Available water capacity: Low
Tilth: Good
Root zone: Very deep

Inclusions

- A few small areas of Fuquay, Lakeland, and Lucy soils

Use and Management

Major uses: Mostly urban development, which includes business districts, cemeteries, parking lots, industries, hospitals, schools, and housing; few small wooded areas and lawns

Urban uses

Suitability: Well suited
Limitations: Slope and seepage that affects some sanitary facilities

Recreational development

Suitability: Poorly suited
Limitations: Sandy texture

Interpretive Groups

Land capability classification: Urban land—none assigned; Troup—IVs
Woodland ordination symbol: None assigned

VAC—Vaucluse and Ailey soils, 5 to 12 percent slopes

Setting

Landscape position: Ridgetops and hillsides
Landscape features: Shallow gullies
Slope class: Gently sloping and strongly sloping
Slope topography: Smooth and convex
Size of areas: 10 to 150 acres

Composition

Vaucluse soil—55 percent
Ailey soil—35 percent
Inclusions—10 percent

Pattern of occurrence: Soils occur in an irregular pattern; both soils are in most areas but not all areas; extent of mapping is sufficient for interpretations of present and predicted uses

Typical Profile

Vaucluse

Surface layer:
0 to 4 inches—dark grayish brown loamy sand

Subsurface layer:
4 to 10 inches—yellowish brown loamy sand

Subsoil:
10 to 28 inches—yellowish red sandy clay loam that has strong brown mottles
28 to 60 inches—red sandy clay loam that has strong brown and yellowish red mottles
60 to 80 inches—mottled yellowish red, red, light gray, and yellowish brown sandy loam

Ailey

Surface layer:
0 to 9 inches—dark grayish brown loamy coarse sand

Subsurface layer:
9 to 24 inches—yellowish brown loamy sand

Subsoil:
24 to 30 inches—yellowish brown coarse sandy loam
30 to 38 inches—yellowish brown sandy clay loam that has yellowish red mottles
38 to 45 inches—yellowish brown sandy clay loam that has strong brown, yellowish red, and red mottles

Substratum:
45 to 80 inches—red sandy loam that has yellowish brown, strong brown, and light gray mottles

Soil Properties and Qualities

Vaucluse

Drainage class: Well drained
Organic matter content: Low
Permeability: Moderate in the upper part of the subsoil and moderately slow or slow in the lower part
Available water capacity: Low
Tilth: Good
Root zone: Moderately deep to a dense and brittle layer

Distinctive features: Soil is dense and brittle in the lower part of the subsoil

Ailey

Drainage class: Well drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part of the subsoil and in the substratum
Available water capacity: Low
Tilth: Good
Root zone: Deep to a compact substratum
Distinctive features: Soil is dense and brittle in 10 to 40 percent of the lower part of the subsoil; most of the substratum is compact

Inclusions

- A few small areas of Nankin soils
- A few small areas of soils that have a surface layer of sandy loam

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Poorly suited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Erosion and low available water capacity
Suitable management measures: Conservation tillage; water management; conservation cropping systems

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Equipment limitations and seedling mortality
Suitable management measures: Planting drought-tolerant species; performing management operations on the contour

Urban uses

Suitability: Well suited
Limitations: Slow permeability in the subsoil and slope

Recreational development

Suitability: Moderately suited
Limitations: Slow permeability in the subsoil, slope, and sandy texture

Interpretive Groups

Land capability classification: Vaucluse—IIIe; Ailey—VIs
Woodland ordination symbol: Vaucluse—7A; Ailey—8S

VAE—Vaucluse and Ailey soils, 12 to 25 percent slopes

Setting

Landscape position: Hillsides
Landscape features: Shallow and deep gullies
Slope class: Moderately steep
Slope topography: Irregular and convex
Size of areas: 10 to 200 acres

Composition

Vaucluse soil—55 percent
Ailey soil—35 percent
Inclusions—10 percent

Pattern of occurrence: Soils occur in an irregular pattern; both soils are in most areas but not all areas; extent of mapping is sufficient for interpretations of present and predicted uses

Typical Profile

Vaucluse

Surface layer:
0 to 4 inches—dark grayish brown loamy sand

Subsurface layer:
4 to 10 inches—yellowish brown loamy sand

Subsoil:
10 to 28 inches—yellowish red sandy clay loam that has strong brown mottles
28 to 60 inches—red sandy clay loam that has strong brown and yellowish red mottles
60 to 80 inches—mottled yellowish red, red, light gray, and yellowish brown sandy loam

Ailey

Surface layer:
0 to 9 inches—dark grayish brown loamy coarse sand

Subsurface layer:
9 to 24 inches—yellowish brown loamy sand

Subsoil:
24 to 30 inches—yellowish brown coarse sandy loam
30 to 38 inches—yellowish brown sandy clay loam that has yellowish red mottles
38 to 45 inches—yellowish brown sandy clay loam that has strong brown, yellowish red, and red mottles

Substratum:
45 to 80 inches—red sandy loam that has yellowish brown, strong brown, and light gray mottles

Soil Properties and Qualities

Vaucluse

Drainage class: Well drained

Organic matter content: Low
Permeability: Moderate in the upper part of the subsoil and moderately slow or slow in the lower part
Available water capacity: Low
Tilth: Good
Root zone: Moderately deep to a dense and brittle layer
Distinctive features: Soil is dense and brittle in the lower part of the subsoil

Ailey

Drainage class: Well drained
Organic matter content: Low
Permeability: Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part of the subsoil and in the substratum
Available water capacity: Low
Tilth: Good
Root zone: Deep to a compact substratum
Distinctive features: Soil is dense and brittle in 10 to 40 percent of the lower part of the subsoil; most of the substratum is compact

Inclusions

- A few small areas of Nankin soils

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Unsuited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Erosion and slope

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, and longleaf pine
Management concerns: Erosion, seedling mortality, and equipment limitations
Suitable management measures: Planting drought-tolerant species; performing management operations on the contour

Urban uses

Suitability: Moderately suited
Limitations: Slope and slow permeability in the subsoil

Recreational development

Suitability: Poorly suited
Limitations: Slope

Interpretive Groups

Land capability classification: Vaucluse—VIe; Ailey—VIIe
Woodland ordination symbol: Vaucluse—7A; Ailey—8S

WbA—Wahee fine sandy loam, 0 to 2 percent slopes, rarely flooded

Setting

Landscape position: Stream terraces
Flooding: Rare
Slope class: Nearly level
Size of areas: 10 to 75 acres

Typical Profile

Surface layer:
0 to 3 inches—very dark grayish brown fine sandy loam

Subsurface layer:
3 to 16 inches—yellowish brown clay loam that has gray and yellowish red mottles

Subsoil:
16 to 42 inches—gray clay that has yellowish brown and yellowish red mottles
42 to 80 inches—mottled gray, yellowish red, and yellowish brown clay

Soil Properties and Qualities

Drainage class: Somewhat poorly drained
Depth to high water table: 0.5 foot to 1.5 feet
Organic matter content: Low or moderately low
Permeability: Slow
Available water capacity: High
Tilth: Fair
Root zone: Very deep

Use and Management

Field crops, hay, and pasture

Suitability for field crops: Moderately suited
Suitability for hay: Moderately suited
Suitability for pasture: Moderately suited
Management concerns: Wetness
Suitable management measures: Water management

Woodland

Potential productivity: Moderate
Trees preferred for planting: Loblolly pine, slash pine, sweetgum, and southern red oak
Management concerns: Wetness, equipment limitations, and seedling mortality
Suitable management measures: Performing management operations during the drier periods

Urban uses

Suitability: Unsuited
Limitations: Wetness and flooding

Recreational development

Suitability: Poorly suited
Limitations: Wetness and flooding

Interpretive Groups

Land capability classification: IIw
Woodland ordination symbol: 9W

Important Farmland

Prime Farmland

In this section, prime farmland and additional farmland of statewide importance are defined and discussed. The map units in the survey area that are considered important farmland and the acreage of each are listed in table 5. This list does not constitute a recommendation for a particular land use. The location of each map unit is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units."

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. The moisture supply must be adequate, and the growing season must be sufficiently long. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources. Farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or woodland or for other purposes. They are used for food or fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in National forests, National parks, military reservations, and State parks.

Prime farmland soils usually receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not frequently flooded during the growing season. The slope ranges mainly from 0 to 8 percent. About 36,000 acres in the survey area, or about 9 percent of the total acreage, meets the requirements for prime farmland.

Additional Farmland of Statewide Importance

About 99,000 acres in the survey area is additional farmland of statewide importance. This farmland consists of soils that are important as part of the agricultural resource base in the counties but that do not meet the requirements for prime farmland. These soils are seasonally wet, cannot be easily cultivated, are more erodible than prime farmland soils, and are usually less productive.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in the survey area. The survey can help planners to maintain or create a land use pattern that is in harmony with nature.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

James E. Dean, conservation agronomist, and Jack L. Fokes, district conservationist, Natural Resources Conservation Service, helped prepare this section.

The major management concerns affecting the use of the soils in the survey area for crops and pasture are described in this section. In addition, the crops and pasture plants best suited to the soil, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Natural Resources Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

This section provides information about the overall agricultural potential of the survey area and about the management practices that are needed. The information is useful to land users, equipment dealers, land improvement contractors, fertilizer companies, processing companies, planners, conservationists, and others. Information about management for each kind of soil is presented in the section "Detailed Soil Map Units."

Soil erosion is the main concern on about 35,000 acres of cropland and pasture in the survey area. If the slope is more than 5 percent, soil erosion is a potential hazard. Loss of the surface layer of soil through erosion is damaging. Soil productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a shallow surface layer or a clayey subsoil, or both. Examples include some Cowarts and Nankin soils that have a shallow surface layer and Esto and Greenville soils that have a clayey subsoil. Tilling or preparing a good seedbed is difficult in clayey spots on these soils because the original friable surface soil has been lost through erosion. Erosion on farmland results in the sedimentation of streams. Controlling erosion minimizes the pollution of streams by sediments and improves water quality for municipal use, for recreation, and for fish and wildlife.

Erosion-control measures provide a protective surface cover, help to control the amount and rate of runoff, and increase the rate of water infiltration. A cropping system that keeps a plant cover on the soil for extended periods can keep soil losses to amounts that do not reduce the productive capacity of the soil. On livestock farms, including forage crops of legumes and grasses in the cropping system helps to control erosion on sloping land, provide nitrogen to the soil, and improve tilth for the following crop.

Terraces and diversions shorten the length of slopes and help to control runoff and erosion. They are most practical on deep, well drained soils that have regular slopes. Dothan, Greenville, Orangeburg, and Red Bay soils are suited to terraces. Grassed waterways and underground outlets provide suitable outlets for terraces and diversions.

Some slopes are so short and irregular that terraces are not practical. In these areas, a cropping system that provides a substantial cover of plant residue is needed to minimize erosion. Managing crop residue, conservation tillage, stripcropping, and including grasses and legumes in pasture rotation provide a surface cover, increase the rate of water infiltration, and reduce the hazards of runoff and erosion. These conservation practices can be adapted to most of the soils in the survey area. No-till farming, a type of conservation tillage, is becoming increasingly common.

Most of the soils used as cropland are subject to soil erosion if they are plowed in fall and left bare until spring. Winter cover crops should be planted where cropland is plowed in fall.

Soil blowing is a management concern on soils that have a sandy surface layer, including Ailey, Fuquay, Lakeland, Lucy, and Troup soils. It can cause soil erosion. On these soils, young seedlings can be damaged if winds are strong and the soils are dry and do not have other vegetation or surface mulch. Maintaining crop residue as surface mulch, planting cover crops, and keeping the surface rough by proper tillage help to minimize soil blowing.

Bottom-land soils in the survey area include Bibb, Chastain, Iuka, and Ochlockonee soils. On some bottom-land soils, the production of crops and pasture generally is not possible without drainage measures. Existing drainage systems need to be continually maintained on these soils. Bottom-land soils are also subject to flooding.

Information about erosion control and drainage measures for each kind of soil is available at the local office of the Natural Resources Conservation Service.

Soil fertility is naturally low in most of the upland soils in the survey area. Most of the soils are naturally acid. Soils on flood plains, such as Bibb, Chastain, Eunola, Iuka, and Ochlockonee soils, range from slightly acid to strongly acid.

Many of the soils in the uplands are naturally strongly acid or very strongly acid. Because the content of available phosphorus and potash is naturally low in most of these soils, applications of ground limestone are needed to raise the pH level of the soils and improve the growth of legumes and other crops. On all soils, applications of lime, fertilizer, and organic wastes should be based on the results of a soil test, waste analysis, realistic crop yields, and a nutrient management plan. The Cooperative Extension Service and the Natural Resources Conservation Service can provide information about nutrient management plans.

Organic matter is an important factor in the germination of seeds, root growth, the infiltration of water into the soil, and soil erosion. Soils that have good tilth are granular and porous. Most of the soils used for crops in the survey area have a surface layer that is loamy sand and has a low content of organic matter. Generally, the structure of these soils is poor and intense rainfall causes the formation of a crust on the surface. This crust is hard when dry. It reduces infiltration rates and plant growth and increases runoff rates. Managing crop residue, conservation tillage, stripcropping, including grasses and legumes in pasture rotation, and regularly adding manure and other organic material to the soil improve soil structure and help to prevent the formation of a crust.

Crops commonly grown in the survey area are corn, peanuts, soybeans, wheat, grain sorghum, and vegetables. The soils and climate are also suited to some field crops not commonly grown in the area. These crops include sunflower and canola. Specialty crops grown in the area are sweet corn, field peas, watermelons, small fruits, and nursery plants. Watermelons make up the greatest acreage of specialty crops.

Deep soils that have good natural drainage and that warm up early in spring are especially well suited to many vegetables and small fruits. Cowarts, Dothan, Fuquay, Lucy, Red Bay, Orangeburg, and Troup soils that have slopes of less than 12 percent are well suited to these crops. Most of the well drained soils in the survey area are suitable for orchards and nursery plants. Soils in low areas, where frost is frequent and air drainage is poor, generally are poorly suited to early vegetables, small fruits, orchards, and nursery plants. If adequately managed and protected from flooding, many of the soils on flood plains are suited to a variety of vegetable crops.

Technical assistance and information about the production of specialty crops are available at local agricultural agencies.

Irrigation is becoming more widely used in the production of row, orchard, and specialty crops. The major sources of water for irrigation are subsurface water from deep wells and surface water from streams and ponds.

Pastureland and hayland in the survey area are commonly seeded to pensacola bahiagrass, common bermudagrass, fescue, and clovers. The well drained soils are suited to pensacola bahiagrass, common bermudagrass, and hybrid bermudagrasses.

Farming is competing with other land uses for large areas in Chattahoochee and Marion Counties. In 1992, about 1,700 acres was urban or built-up land. Much of this land had been well suited to crops. Each year additional land is being developed for urban uses. Generally, the soils in the survey area that are well suited to crops also are well suited to urban development. Prime farmland makes up about 36,000 acres of the survey area. Prime farmland soils are listed in table 5.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss. The fertilizer needs of specific crops on specific soils can be determined by soil tests.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for use as cropland. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode, but they have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production. There are no soils in this class in the survey area.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

There are no subclasses in class I because the soils of this class have few limitations. The soils in class V are subject to little or no erosion, but they have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation. Class V contains only the subclasses indicated by *w, s,* or *c.*

The acreage of soils in each capability class and subclass in the survey area is shown in table 7. The capability classification of each map unit is given in the section "Detailed Soil Map Units" and in the yields table.

Woodland Management and Productivity

Gary L. Tyre, forester, Natural Resources Conservation Service, helped prepare this section.

The most significant forest types in Chattahoochee and Marion Counties are oak-hickory, loblolly-shortleaf pine, oak-pine, and, on the smaller acreages, longleaf-slash pine and oak-gum-cypress. These forest types were also dominant in the virgin forests that covered a large portion of the survey area.

In Chattahoochee County, about one-third of the forestland is the oak-hickory type and about half is the loblolly-shortleaf type *(7).* Oak-pine, longleaf-slash, and oak-gum-cypress each cover about 7 percent of the forestland in Chattahoochee County. In Marion County, about one-third of the forestland is oak-hickory and about one-third is loblolly-shortleaf. The remaining forestland in Marion County is about 11 percent oak-pine, 8 percent oak-gum-cypress, 7 percent elm-ash-cottonwood, and 3 percent longleaf-slash pine.

A significant portion of the forestland in Chattahoochee County is federally owned. In this county, more than 73,000 acres of forest, or more than 55 percent of the forestland, is in Fort Benning. Almost one-third of the county's forestland is privately owned by individuals, and about 14 percent is owned by the forest industry.

In Marion County, almost all of the forestland is privately owned. The forest industry owns about 45 percent, and individuals privately own about 55 percent.

Chattahoochee County has a higher percentage of productive soils than Marion County. In Chattahoochee County, about 36 percent of the forestland can produce a cord or more per acre per year. In Marion County, only about 18 percent of the forestland can produce at that rate. Stocking in the two counties somewhat reflects the differences in productivity. In Chattahoochee County, almost 40 percent of the forestland is stocked at 100 percent or more and only 12 percent is stocked at 60 percent or less. In Marion County, less than 30 percent of the forestland is fully stocked and a third is stocked at 60 percent or less.

Forests in the survey area are on a wide variety of soils. Most of the soils on flood plains and stream terraces, such as Bibb, Iuka, Chastain, Ochlockonee, Bigbee, and Eunola soils, are highly productive, having a site index of 90 or greater. Trees grown on these soils include blackgum, sweetgum, water oak, yellow-poplar, loblolly pine, and, in some areas, water tupelo and baldcypress. Generally, limitations associated with these soils are manageable. Bibb and Chastain soils mainly have severe limitations affecting the use of equipment and seedling mortality.

Upland soils that occur extensively in Chattahoochee and Marion Counties include Nankin, Cowarts, Vaucluse, Troup, Ailey, and Lakeland soils. These soils are well drained or excessively drained. They are commonly covered by forests of such species as slash pine, longleaf pine, and loblolly pine. Turkey oak, blackjack oak, and post oak also are common on Lakeland soils, which are the most excessively drained of these upland soils. Lakeland, Troup, and Ailey soils have moderate limitations affecting the use of equipment and seedling mortality because of their droughtiness. Most of the other soils generally do not have major limitations, except where slope is a problem. Where slope is a problem, a hazard of erosion, equipment limitations, and seedling mortality are moderate management concerns.

Other upland soils, such as Lucy, Dothan, Greenville, Orangeburg, Red Bay, and Fuquay soils, occur less extensively in the survey area. They are relatively productive and generally do not have any special management concerns.

Soils vary in their ability to produce trees. Available water capacity and depth of the root zone have major effects on tree growth. Fertility and texture also influence tree growth. Elevation, aspect, and climate determine the kinds of trees that can grow on a site.

This soil survey can be used by woodland managers planning ways to increase the productivity of forestland. Some soils respond better to applications of fertilizer than others, and some are more susceptible to erosion after roads are built and timber is harvested. Some soils require special reforestation efforts. In the section "Detailed Soil Map Units," the description of each map unit in the survey area suitable for timber includes information about productivity, limitations in harvesting timber, and management concerns in producing timber. Table 8 summarizes this forestry information and rates the soils for a number of factors to be considered in management. *Slight, moderate,* and *severe* are used to indicate the degree of the major soil limitations to be considered in forest management.

Table 8 lists the *ordination symbol* for each soil. The first part of the ordination symbol, a number, indicates

the potential productivity of a soil for the indicator species in cubic meters per hectare. The larger the number, the greater the potential productivity. Potential productivity is based on the site index and the point where mean annual increment is the greatest.

The second part of the ordination symbol, a letter, indicates the major kind of soil limitation affecting use and management. The letter *R* indicates a soil that has a significant limitation because of steepness of slope. The letter *X* indicates that a soil has restrictions because of stones or rocks on the surface. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *T* indicates a soil that has, within the root zone, excessive alkalinity or acidity, sodium salts, or other toxic substances that limit the development of desirable trees. The letter *D* indicates a soil that has a limitation because of a restricted rooting depth, such as a shallow soil that is underlain by hard bedrock, a hardpan, or other layers that restrict roots. The letter *C* indicates a soil that has a limitation because of the kind or amount of clay in the upper part of the profile. The letter *S* indicates a dry, sandy soil. The letter *F* indicates a soil that has a large amount of coarse fragments. The letter *A* indicates a soil having no significant restrictions or limitations that affect forest use and management. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, and F.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation or harvesting activities expose the soil. The risk is *slight* if no particular preventive measures are needed under ordinary conditions; *moderate* if erosion-control measures are needed for particular silvicultural activities; and *severe* if special precautions are needed to control erosion for most silvicultural activities. Ratings of moderate or severe indicate the need for construction of higher standard roads, additional maintenance of roads, additional care in planning harvesting and reforestation activities, or the use of special equipment.

Ratings of *equipment limitation* indicate limits on the use of forest management equipment, year-round or seasonal, because of such soil characteristics as slope, wetness, stoniness, and susceptibility of the surface layer to compaction. As slope gradient and length increase, it becomes more difficult to use wheeled equipment. On the steeper slopes, tracked equipment is needed. On the steepest slopes, even tracked equipment cannot be operated and more sophisticated systems are needed. The rating is *slight* if equipment use is restricted by wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are so steep that wheeled equipment cannot be operated safely across the slope, if wetness restricts equipment use from 2 to 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. The rating is *severe* if slopes are so steep that tracked equipment cannot be operated safely across the slope, if wetness restricts equipment use for more than 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. Ratings of moderate or severe indicate a need to choose the best suited equipment and to carefully plan the timing of harvesting and other management activities.

Ratings of *seedling mortality* refer to the probability of the death of naturally occurring or properly planted seedlings of good stock in periods of normal rainfall, as influenced by kinds of soil or topographic features. Seedling mortality is caused primarily by too much water or too little water. The factors used in rating a soil for seedling mortality are texture of the surface layer, depth to a high water table and the length of the period when the water table is high, rock fragments in the surface layer, rooting depth, and the aspect of the slope. The mortality rate generally is highest on soils that have a sandy or clayey surface layer. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent; *moderate* if expected mortality is between 25 and 50 percent; and *severe* if expected mortality exceeds 50 percent. Ratings of moderate or severe indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing a surface drainage system, and providing artificial shade for seedlings. Reinforcement planting is often needed if the risk is moderate or severe.

The *potential productivity* of *common trees* on a soil is expressed as a *site index*. Common trees are listed in the order of their observed general occurrence. Generally, only two or three tree species dominate. The first tree listed for each soil is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands.

The *productivity class* represents an expected volume produced by the most important trees, expressed in cubic meters per hectare per year calculated at the age of culmination of mean annual increment.

Trees to plant are those that are used for

reforestation or, under suitable conditions, natural regeneration. They are suited to the soils and can produce a commercial wood crop. The desired product, topographic position (such as a low, wet area), and personal preference are three factors among many that can influence the choice of trees for use in reforestation.

Recreation

In table 9, the soils of the survey area are rated according to the limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures.

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 12 and interpretations for dwellings without basements and for local roads and streets in table 11.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have gentle slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes, stones, or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the period of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Louis Justice, biologist, Natural Resources Conservation Service, helped prepare this section.

Chattahoochee and Marion Counties generally have a rural, sandhill environment. This environment provides good habitat for wildlife, mainly in pastured or wooded areas. About 70 percent of the survey area is forested. The rest is mainly used for field crops (about 17 percent) or pasture (about 11 percent). The forests are mainly stands of mixed pine and hardwoods. These stands are primarily loblolly-shortleaf pine and include some southern red oak. Chattahoochee County has large areas of longleaf pine-turkey oak forest, which provide habitat for many nongame species of wildlife, such as the endangered red-cockaded woodpecker.

Major plants that are important for wildlife include greenbrier, grape, honeysuckle, shrub lespedeza, annual lespedeza, panicgrass, croton, ragweed, partridge pea, paspalum, tickclover, and sumac. The important overstory and understory plants are hickory, sweetgum, oak, hackberry, cherry, plum, pine, elm, dogwood, persimmon, and maple. The important

domestic plants include corn, soybeans, grasses, legumes, and small grain.

Areas of cropland or pasture that are interspersed with pine and hardwood forests or hardwood forests provide habitat for white-tailed deer, turkey, mourning dove, raccoon, squirrel, opossum, and fox. Populations of rabbit and bobwhite quail are good in areas that provide suitable food and cover. Unmanaged pasture, old fields, young pine plantations, tracts of mixed pine and hardwoods, and thinned tracts of woodland produce numerous native woody and herbaceous plants. These plants provide food and cover for black bear, deer, turkey, rabbit, fox, quail, and other wildlife. Restoring hedgerows, field borders, windbreaks, and certain areas of pasture and cropland improve wildlife habitat. In addition, prescribed burning, thinning, and retaining mast-producing trees, such as oaks, can improve the ability of pine plantations to support wildlife.

Wetland habitat supports a variety of furbearers, such as otter, beaver, bobcat, and raccoon. Wetland areas also provide the habitat necessary for waterfowl. In Chattahoochee County, the best available wetland habitat occurs in areas of bottom-land hardwoods along the Chattahoochee River, Hichitee Creek, Ochillee Creek, Oswichee Creek, Upatoi Creek, and the Walter F. George Reservoir. In Marion County, areas of wetland habitat occur along Buck Creek, Dry Creek, Juniper Creek, Kinchafoonee Creek, Lanahassee Creek, Mill Creek, Muckalee Creek, Oochee Creek, Pine Knot Creek, Shoal Creek, and Upatoi Creek. Numerous beaver ponds in both counties provide excellent wetland habitat.

Fishing is good in the major streams and many farm ponds of the survey area and in the Walter F. George Reservoir. Species of sport fish include largemouth bass, crappie, channel catfish, bullheads, bluegill, and redear sunfish. Because of the fragile habitat requirements of fish, special efforts are needed to control water pollution from both point and nonpoint sources.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, barley, millet, sunflowers, and grain sorghum.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, bermudagrass, bahiagrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, partridge pea, threeawn, aster, and ragweed.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of

hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, hackberry, hawthorn, dogwood, hickory, blackberry, maple, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are plum, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine and red cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, pondweed, rushes, sedges, and Asiatic dayflower.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes and beaver ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, wild turkey, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in

this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm, dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. Depth to a high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, depth to a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, depth to a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 12 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 12 also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is

evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 12 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and generally 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, depth to a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in table 12 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, depth to a water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 13 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil

layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 13, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and releases a variety of plant nutrients as it decomposes.

Water Management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and for embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives the restrictive features that

affect each soil for drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of soil blowing or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of soil blowing, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 15 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20, or higher, for the poorest.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074

millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas.

The estimates of grain-size distribution, liquid limit, and plasticity index generally are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 16 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence the shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at ⅓-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of movement of water through the soil when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage in each major soil layer is stated in inches of water per inch of soil. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, more than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on

percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 16, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 17 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflowing streams, by runoff from adjacent slopes, or by inflow from high tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in swamps and marshes or in a closed depression is considered ponding.

Table 17 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as *none, rare, occasional,* or *frequent. None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year). *Frequent* means that flooding occurs often under normal weather conditions (the chance of flooding is more than 50 percent in any year). Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 days to 1 month), and *very long* (more than 1 month). The time of year that floods are most likely to occur is expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered is local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 17 are the depth to the high water table; the kind of water table, that is, *perched* or *apparent;* and the months of the year that the water table commonly is highest. A water table that is seasonally high for less than 1 month is not indicated in table 17.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an

unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low, moderate,* or *high.* It is based on soil texture, acidity, and the amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(8)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or on laboratory measurements. Table 18 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders, primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Kandiudults (*Kandi*, meaning low-activity clay, plus *udult*, the suborder of the Ultisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Kandiudults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, siliceous, thermic Typic Kandiudults.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. There can be some variation in the texture of the surface layer or of the substratum within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" *(9)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(8)*. Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Ailey Series

Depth class: Deep to a dense layer
Drainage class: Well drained
Permeability: Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil,

and slow in the lower part of the subsoil and in the substratum

Parent material: Sandy and loamy marine sediments
Landscape position: Ridgetops and hillsides
Slope range: 2 to 25 percent
Classification: Loamy, siliceous, thermic Arenic Kanhapludults

Geographically Associated Soils

- Troup soils, which have a sandy epipedon that is 41 to 70 inches thick
- Vaucluse soils, which do not have a sandy epipedon as much as 20 inches thick
- Dothan and Orangeburg soils, which are in the broader and smoother areas and which do not have a sandy epipedon as much as 20 inches thick
- Fuquay soils, which have more than 5 percent plinthite in the subsoil
- Lucy soils, which do not have a dense and compact Bt horizon

Typical Pedon

Ailey loamy coarse sand, 2 to 5 percent slopes; 2.7 miles north on Georgia Highway 240 from its junction with Georgia Highway 137 at Tazewell, 200 feet east of Georgia Highway 240; Marion County:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loamy coarse sand; weak fine granular structure; very friable; many fine roots; about 5 percent quartz gravel; very strongly acid; clear wavy boundary.

E—9 to 24 inches; yellowish brown (10YR 5/4) loamy sand; single grained; loose; few fine and medium roots; very strongly acid; clear wavy boundary.

Bt1—24 to 30 inches; yellowish brown (10YR 5/8) coarse sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; very strongly acid; clear wavy boundary.

Bt2—30 to 38 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium prominent yellowish red (5YR 5/8) mottles; weak fine subangular blocky structure; friable; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btx—38 to 45 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct strong brown (7.5YR 5/8) and common medium prominent yellowish red (5YR 5/8) and red (2.5YR 5/8) mottles; about 65 percent moderate medium subangular blocky structure and 35 percent strong coarse platy structure; blocky peds are firm, and platy peds are very firm and are brittle and hard when dry; few small quartz pebbles; very strongly acid; gradual wavy boundary.

2Cd—45 to 80 inches; red (2.5YR 4/8) sandy loam; common coarse prominent yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) and common fine prominent light gray (10YR 7/2) mottles; massive; very firm in place, and very hard when dry; few small quartz pebbles; very strongly acid.

Range in Characteristics

Thickness of the solum: 42 to 60 inches
Thickness of the sandy epipedon: 20 to 34 inches
Reaction: Strongly acid or very strongly acid throughout the solum except for the surface layer in limed areas
Distinctive features: Dense and brittle bodies make up 10 to 40 percent of the Btx horizon (fig. 4)

A horizon:
Thickness—3 to 9 inches
Color—hue of 10YR, value of 3 to 5, and chroma of 1 or 2

E horizon:
Color—hue of 10YR, value of 5 to 7, and chroma of 4 to 8
Texture—sand, loamy coarse sand, or loamy sand

BE horizon (if it occurs):
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 to 8
Texture—loamy sand or sandy loam

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 5, and chroma of 6 to 8
Mottles—none to common, shades of red or brown
Texture—coarse sandy loam or sandy clay loam

Btx horizon:
Color—horizon has hue of 7.5YR or 10YR, value of 5, and chroma of 4 to 8 or is mottled in shades of yellow, brown, or red
Mottles—common or many, shades of red or brown; gray mottles in the lower part of the horizon in some pedons
Texture—sandy loam, sandy clay loam, or sandy clay

2Cd horizon:
Color—horizon has hue of 2.5YR to 10YR, value of 4 to 7, and chroma of 4 to 8 or is mottled in shades of yellow, brown, red, or gray
Mottles—shades of yellow, brown, red, or gray
Texture—coarse sandy loam, sandy loam, or sandy clay loam

Bibb Series

Depth class: Very deep
Drainage class: Poorly drained

Permeability: Moderate
Parent material: Stratified loamy and sandy alluvial sediments
Depth to high water table: 0.5 to 1.0 foot
Landscape position: Flood plains
Slope range: 0 to 2 percent
Classification: Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents

Geographically Associated Soils

• Iuka soils, which have subhorizons with chroma of 3 or more
• Ochlockonee soils, which are in the higher landscape positions and which do not have mottles with chroma of 2 or less within a depth of 20 inches

Typical Pedon

Bibb sandy loam, frequently flooded; approximately 3.8 miles west on Georgia Highway 26 from its junction with Georgia Highway 41 in Buena Vista, 300 feet south of the road; Marion County:

A—0 to 5 inches; black (10YR 2/1) sandy loam; weak fine granular structure; very friable; many fine and medium roots; few very fine and fine pores; strongly acid; clear wavy boundary.
Ag—5 to 18 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; friable; many fine and medium roots; strongly acid; clear wavy boundary.
Cg1—18 to 55 inches; dark grayish brown (10YR 4/2) sandy loam; common medium distinct yellowish brown (10YR 5/6) mottles; massive; friable; few fine and medium roots; common thin strata of sandier material; strongly acid; clear wavy boundary.
Cg2—55 to 80 inches; dark gray (10YR 4/1) silt loam; massive; friable; few fine and medium roots; common thin strata of partially decomposed forest residues; strongly acid.

Range in Characteristics

Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—2 to 6 inches
Color—hue of 10YR, value of 2 to 4, and chroma of 1 to 3

Ag horizon:
Color—hue of 10YR or 2.5Y, value of 3 to 7, and chroma of 1 or 2

Cg horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2
Mottles—shades of brown
Texture—sandy loam or silt loam that has thin strata of coarser or finer textured material

Bigbee Series

Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Parent material: Sandy alluvial sediments
Depth to high water table: 3.5 to 6.0 feet
Landscape position: Low terraces along streams
Slope range: 0 to 5 percent
Classification: Thermic, coated Typic Quartzipsamments

Geographically Associated Soils

• Lakeland soils, which are on uplands and which do not have a water table within a depth of 80 inches
• Troup soils, which are on uplands and which have a Bt horizon within a depth of 80 inches

Typical Pedon

Bigbee fine sand in an area of Bigbee-Ochlockonee complex, 0 to 5 percent slopes, occasionally flooded; in Fort Benning Military Reservation, 300 feet east on First Division Road from its junction with Pine Tree Road, 1.6 miles generally north on a dirt road, 100 feet east; Chattahoochee County:

A—0 to 4 inches; dark brown (10YR 3/3) fine sand; single grained; loose; few fine roots; moderately acid; abrupt smooth boundary.
C1—4 to 15 inches; yellowish brown (10YR 5/4) fine sand; single grained; loose; strongly acid; clear smooth boundary.
C2—15 to 35 inches; brownish yellow (10YR 6/6) fine sand; single grained; loose; few small pockets of uncoated white (10YR 8/2) sand; strongly acid; clear smooth boundary.
C3—35 to 80 inches; very pale brown (10YR 7/4) fine sand; single grained; loose; few small pockets of uncoated white (10YR 8/2) sand; strongly acid.

Range in Characteristics

Thickness of the sandy material: 80 inches or more
Reaction: Moderately acid to strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—4 to 8 inches
Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3

C horizon:
Color—hue of 10YR, value of 4 to 7, and chroma of 4 to 6

Mottles—few small pockets of uncoated white (10YR 8/2) sand
Texture—sand or fine sand

Chastain Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
Parent material: Clayey alluvial sediments
High water table: Within a depth of 1 foot
Landscape position: Flood plains
Slope range: 0 to 2 percent
Classification: Fine, mixed, acid, thermic Typic Fluvaquents

Geographically Associated Soils

• Bibb soils, which are in a coarse-loamy family
• Eunola soils, which are in a fine-loamy family and are moderately well drained
• Ochlockonee soils, which are in a coarse-loamy family and are well drained

Typical Pedon

Chastain loam, frequently flooded; in Fort Benning Military Reservation, 0.8 mile generally north of Ray Hill on a dirt road, 200 feet east of the dirt road; Chattahoochee County:

A—0 to 3 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; slightly hard; friable; slightly sticky; few fine and medium roots; moderately acid; abrupt smooth boundary.
Bg1—3 to 12 inches; light brownish gray (10YR 6/2) clay loam; few coarse prominent yellowish brown (10YR 5/8) and few medium distinct very dark grayish brown (10YR 3/2) mottles; weak medium subangular blocky structure; hard; friable; slightly sticky; few fine and medium roots; strongly acid; gradual wavy boundary.
Bg2—12 to 38 inches; light brownish gray (10YR 6/2) clay; common medium prominent strong brown (7.5YR 5/8) and yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; firm; strongly acid; gradual wavy boundary.
Bg3—38 to 56 inches; light brownish gray (10YR 6/2) clay; common medium prominent strong brown (7.5YR 5/6), yellowish brown (10YR 5/8), and red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; few fine flakes of mica; strongly acid; gradual wavy boundary.
Cg—56 to 78 inches; light brownish gray (10YR 6/2), stratified sandy clay loam and clay loam; common medium prominent strong brown (7.5YR 5/6), yellowish brown (10YR 5/6), and red (2.5YR 4/8) mottles; massive; friable; strongly acid.

Range in Characteristics

Thickness of the solum: 44 to 72 inches or more
Reaction: Very strongly acid or strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—3 to 6 inches
Color—hue of 10YR, value of 3 or 4, and chroma of 1 to 4

Bg horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 1 or 2
Texture—clay loam or clay

Cg horizon:
Color—hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2
Mottles—shades of brown or red
Texture—sandy clay loam or clay loam

Cowarts Series

Depth class: Moderately deep to a compact substratum
Drainage class: Well drained
Permeability: Moderate in the subsoil and moderately slow or slow in the substratum
Parent material: Loamy marine sediments
Landscape position: Ridgetops and hillsides
Slope range: 5 to 25 percent
Classification: Fine-loamy, siliceous, thermic Typic Kanhapludults

Geographically Associated Soils

• Ailey soils, which have a sandy epipedon that is 20 to 34 inches thick
• Lakeland soils, which are sandy throughout
• Nankin soils, which are in a clayey family
• Troup soils, which have a sandy epipedon that is 41 to 70 inches thick

Typical Pedon

Cowarts loamy sand in an area of Cowarts and Ailey soils, 18 to 25 percent slopes; in Fort Benning Military Reservation, generally north on Red Diamond Road from its junction with Hourglass Road, 0.4 mile east on a dirt road to Stevens Road, 1,500 feet across a dam in the roadbank; Chattahoochee County:

A—0 to 4 inches; dark grayish brown (10YR 4/2) loamy

sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

E—4 to 14 inches; brownish yellow (10YR 6/6) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; gradual wavy boundary.

Bt1—14 to 20 inches; yellowish brown (10YR 5/8) sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; few coarse rounded ironstone nodules; common fine rounded quartz pebbles; strongly acid; gradual wavy boundary.

Bt2—20 to 37 inches; yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Cd—37 to 80 inches; mottled yellowish red (5YR 5/8), strong brown (7.5YR 5/6), and light gray (10YR 7/1) sandy loam; massive; very firm; few medium white kaolin particles; very strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 40 inches

Ironstone nodules: A and B horizons in some pedons contain about 5 percent ironstone nodules

Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

Distinctive features: Compact and dense Cd horizon (fig. 5)

Other characteristics: Some pedons have a 2C horizon

A horizon:
- Thickness—4 to 7 inches
- Color—hue of 10YR, value of 3 to 5, and chroma of 2

E horizon (if it occurs):
- Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 8

Bt horizon:
- Color—hue of 5YR to 10YR, value of 5 or 6, and chroma of 4 to 8
- Mottles—none to many, shades of red, brown, or yellow in the lower part of the horizon
- Texture—sandy loam or sandy clay loam; sandy clay in the lower part of the horizon in some pedons

Cd horizon:
- Color—mottled in shades of red, brown, or gray
- Texture—coarse sandy loam, sandy loam, or sandy clay loam

Dothan Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate in the upper part of the subsoil and moderately slow in the lower part

Parent material: Loamy marine sediments

Depth to high water table: 3 to 5 feet

Landscape position: Ridgetops and hillsides

Slope range: 2 to 8 percent

Classification: Fine-loamy, siliceous, thermic Plinthic Kandiudults

Geographically Associated Soils

- Cowarts soils, which have a solum that is thinner than that of the Dothan soils and which do not have horizons containing more than 5 percent plinthite
- Fuquay soils, which have a sandy epipedon that is 20 to 40 inches thick
- Orangeburg soils, which do not have horizons containing more than 5 percent plinthite

Typical Pedon

Dothan loamy sand, 2 to 5 percent slopes; 0.6 mile north on Georgia Highway 240 from its junction with Georgia Highway 137 at Tazewell, approximately 3.0 miles west on County Road 138 and Walter Wells Road, 100 feet south of the road; Marion County:

Ap—0 to 10 inches; dark brown (10YR 4/3) loamy sand; weak medium granular structure; very friable; many fine roots; few coarse rounded ironstone nodules; slightly acid; abrupt wavy boundary.

Bt1—10 to 22 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common fine roots; common fine and medium pores; few coarse rounded ironstone nodules; moderately acid; clear wavy boundary.

Bt2—22 to 32 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium prominent yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; common fine pores; common distinct clay films on faces of peds; few coarse rounded ironstone nodules; moderately acid; gradual wavy boundary.

Bt3—32 to 50 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium prominent strong brown (7.5YR 5/6) and red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; friable; about 3 percent nodular plinthite; common distinct clay films on faces of peds; strongly acid; gradual wavy boundary.

Btv—50 to 80 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium prominent strong brown (7.5YR 5/6) and few fine prominent red (2.5YR 4/8) and pale yellow (2.5Y 7/4) mottles;

weak medium subangular blocky structure; friable; about 8 percent nodular plinthite; common distinct clay films on faces of peds; strongly acid.

Range in Characteristics

Thickness of the solum: 60 inches or more
Plinthite: 5 to 15 percent at depths of 38 to 60 inches (fig. 6)
Reaction: Strongly acid or moderately acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—8 to 12 inches
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3

E horizon (if it occurs):
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4

BE horizon (if it occurs):
Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 8

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 to 8
Mottles—none to common, shades of brown or red

Btv horizon:
Color—horizon has hue of 10YR, value of 6 to 8, and chroma of 4 to 8 or is mottled in shades of red, brown, yellow, or gray
Mottles—few to many, shades of red, brown, yellow, or gray

Esto Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Parent material: Clayey marine sediments
Landscape position: Ridgetops and hillsides
Slope range: 2 to 15 percent
Classification: Clayey, kaolinitic, thermic Typic Kandiudults

Geographically Associated Soils

• Cowarts soils, which are in a fine-loamy family
• Dothan and Fuquay soils, which contain 5 percent or more plinthite within a depth of 60 inches

Typical Pedon

Esto sandy loam, 2 to 5 percent slopes; in Fort Benning Military Reservation, 0.1 mile northeast on Hourglass Road from its junction with Cusseta Road at the Camp Rogers headquarters, 1.7 miles southeast on a dirt road, 250 feet north of the road; Chattahoochee County:

A—0 to 2 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; very friable; many fine roots; few medium ironstone nodules; strongly acid; abrupt smooth boundary.
E—2 to 8 inches; brownish yellow (10YR 6/6) sandy loam; weak medium granular structure; very friable; strongly acid; clear wavy boundary.
Bt1—8 to 17 inches; yellowish red (5YR 5/8) sandy clay; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.
Bt2—17 to 38 inches; mottled yellowish red (5YR 5/8), yellowish brown (10YR 5/8), and red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.
Bt3—38 to 60 inches; mottled light gray (10YR 7/2), light yellowish brown (2.5Y 6/4), red (2.5YR 4/8), and yellowish brown (10YR 5/8) clay; moderate medium subangular blocky structure; firm; common prominent clay films on faces of peds; very strongly acid; gradual wavy boundary.
Bt4—60 to 78 inches; mottled light brownish gray (10YR 6/2), red (2.5YR 4/8), yellowish brown (10YR 5/8), and light yellowish brown (2.5Y 6/4) sandy clay; moderate medium subangular blocky structure; firm; common prominent clay films on faces of peds; very strongly acid.

Range in Characteristics

Thickness of the solum: 60 inches or more
Reaction: Very strongly acid or strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—2 to 5 inches
Color—hue of 10YR, value of 3 to 5, and chroma of 2 or 3

E horizon (if it occurs):
Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 6

Bt horizon, upper part:
Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—clay loam, sandy clay, or clay

Bt horizon, lower part:
Color—horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8 or is mottled in shades of red, brown, yellow, or gray
Mottles—shades of red, brown, yellow, or gray
Texture—sandy clay or clay

Eunola Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Parent material: Alluvial sediments
Depth to high water table: 1.5 to 2.5 feet
Landscape position: Stream terraces
Slope range: 0 to 3 percent
Classification: Fine-loamy, siliceous, thermic Aquic Hapludults

Geographically Associated Soils

• Bibb soils, which are in the lower areas on flood plains and are in a coarse-loamy family
• Chastain soils, which are in the lower areas on flood plains and are poorly drained

Typical Pedon

Eunola sandy loam, 0 to 3 percent slopes, occasionally flooded; in Fort Benning Military Reservation, 1.1 miles northwest on Cusseta Road from its junction with Victory Drive (U.S. Highway 280), approximately 1.5 miles north on a dirt road that crosses Lemert Creek and Seaboard Air Line Railroad, 50 feet west of the road; Chattahoochee County:

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; very friable; common very fine and fine roots; strongly acid; abrupt smooth boundary.
BE—4 to 10 inches; yellowish brown (10YR 5/4) sandy loam; weak medium subangular blocky structure; very friable; few very fine and fine roots; strongly acid; clear smooth boundary.
Bt1—10 to 24 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; strongly acid; gradual smooth boundary.
Bt2—24 to 42 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) and few medium distinct light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; friable; strongly acid; gradual smooth boundary.
BC—42 to 54 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct light gray (10YR 7/2) and strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable; common distinct clay films on faces of peds; strongly acid; gradual smooth boundary.
2C—54 to 75 inches; mottled strong brown (7.5YR 5/6), light gray (10YR 7/2), and yellowish red (5YR 5/8) loamy sand; single grained; loose; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches or more
Depth to mottles with chroma of 2 or less: 5 to 20 inches below the top of the Bt horizon
Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—4 to 8 inches
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 or 3

E horizon (if it occurs):
Color—hue of 10YR, value of 5 or 6, and chroma of 4
Texture—loamy sand or sandy loam

BE horizon (if it occurs):
Color—hue of 10YR, value of 5, and chroma of 4 to 6

Bt horizon, upper part:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 6

Bt horizon, lower part:
Color—horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 6 or is mottled in shades of gray, yellow, brown, or red
Mottles—shades of gray, yellow, brown, or red

BC horizon:
Color—horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 2 to 6 or is mottled in shades of gray, brown, or red
Mottles—shades of gray, brown, or red

2C horizon:
Color—horizon has hue of 7.5YR or 10YR, value of 6 or 7, and chroma of 1 to 6 or is mottled in shades of red, brown, yellow, or gray
Mottles—shades of red, brown, yellow, or gray

Fuquay Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part
Parent material: Sandy and loamy marine sediments
Depth to high water table: 4 to 6 feet
Landscape position: Ridgetops and hillsides
Slope range: 0 to 8 percent
Classification: Loamy, siliceous, thermic Arenic Plinthic Kandiudults

Geographically Associated Soils

• Dothan and Orangeburg soils, which do not have a sandy epipedon as much as 20 inches thick
• Troup soils, which have a sandy epipedon that is 41 to 70 inches thick

Typical Pedon

Fuquay loamy sand, 0 to 5 percent slopes; 0.5 mile north of Tazewell on Georgia Highway 240, about 1.1 miles west and 0.3 mile south on a county road, about 250 feet east of the road; Marion County:

Ap—0 to 10 inches; dark brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; many fine and medium roots; few fine and medium ironstone nodules; strongly acid; abrupt smooth boundary.

E—10 to 33 inches; yellowish brown (10YR 5/6) sand; single grained; loose; common medium roots; light gray (10YR 7/2) bodies of uncoated sand grains; very strongly acid; diffuse smooth boundary.

Bt—33 to 45 inches; brownish yellow (10YR 6/6) sandy loam; few fine distinct strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable; few medium roots; very strongly acid; clear wavy boundary.

Btv1—45 to 55 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium prominent strong brown (7.5YR 5/8) mottles; weak medium angular blocky structure; friable; few medium roots; about 5 percent nodular plinthite; few faint clay films on faces of peds; few ironstone nodules; very strongly acid; abrupt wavy boundary.

Btv2—55 to 62 inches; mottled strong brown (7.5YR 5/8), brownish yellow (10YR 6/6), and light gray (10YR 7/2) sandy clay loam; weak medium angular blocky structure; firm; about 10 percent nodular plinthite; common distinct clay films on faces of peds; few coarse ironstone nodules; very strongly acid; abrupt wavy boundary.

Btv3—62 to 80 inches; mottled strong brown (7.5YR 5/8), brownish yellow (10YR 6/6), red (2.5YR 4/8), and light gray (10YR 7/2) sandy clay loam; weak medium angular blocky structure; firm; about 10 percent nodular plinthite; common distinct clay films on faces of peds; common coarse ironstone nodules; very strongly acid.

Range in Characteristics

Thickness of the solum: 80 inches or more
Thickness of the sandy epipedon: 20 to 40 inches (fig. 7)
Plinthite: 45 to 60 inches to horizon containing 5 percent or more plinthite
Ironstone nodules: 0 to 5 percent throughout the profile
Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

Ap horizon:
Thickness—5 to 10 inches
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 or 3

E horizon:
Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 4 to 6
Texture—sand or loamy sand

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 to 8
Mottles—none to common, shades of brown or yellow
Texture—sandy loam or sandy clay loam

Btv horizon:
Color—horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 to 8 or is mottled in shades of yellow, brown, red, or gray
Mottles—common or many, shades of yellow, brown, red, or gray

Greenville Series

Depth class: Very deep (fig. 8)
Drainage class: Well drained
Permeability: Moderate
Parent material: Clayey marine sediments
Landscape position: Ridgetops and hillsides
Slope range: 0 to 12 percent
Classification: Clayey, kaolinitic, thermic Rhodic Kandiudults

Geographically Associated Soils

• Red Bay soils, which are in a fine-loamy family
• Orangeburg soils, which are fine-loamy and have value of 4 or more in the Bt horizon
• Lucy and Troup soils, which have a sandy epipedon that is more than 20 inches thick

Typical Pedon

Greenville sandy loam, 0 to 2 percent slopes; 0.1 mile north from the Sumter-Marion County line on Georgia Highway 30, about 0.4 mile west on County Road 122, about 150 feet north of the road; Marion County:

Ap—0 to 9 inches; dark reddish brown (5YR 3/4) sandy loam; weak medium granular structure; very friable; common fine roots; very strongly acid; abrupt smooth boundary.

BA—9 to 14 inches; dark red (2.5YR 3/6) sandy clay loam; weak fine subangular blocky structure; friable; few fine roots; common distinct clay films on faces

Figure 4.—Profile of Alley loamy coarse sand. The mottled layer, occurring below a depth of about 90 centimeters, has dense and brittle properties.

Figure 5.—Profile of Cowarts loamy sand. The substratum, occurring below a depth of about 80 centimeters, is dense and compact.

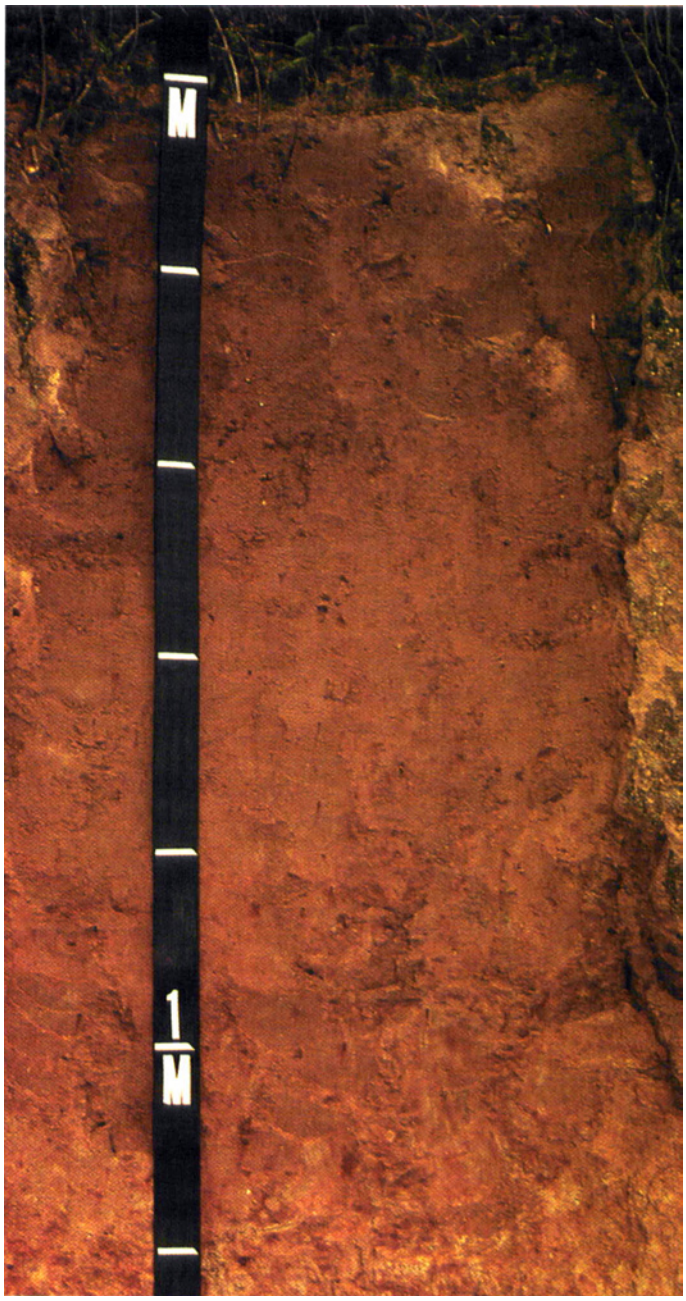

Figure 6.—Profile of Dothan loamy sand. Plinthite occurs at a depth of about 1 meter. A perched water table occurs above this layer during wet periods.

Figure 7.—Profile of Fuquay loamy sand. A sandy epipedon extends to a depth of about 90 centimeters. Plinthite occurs below a depth of about 120 centimeters.

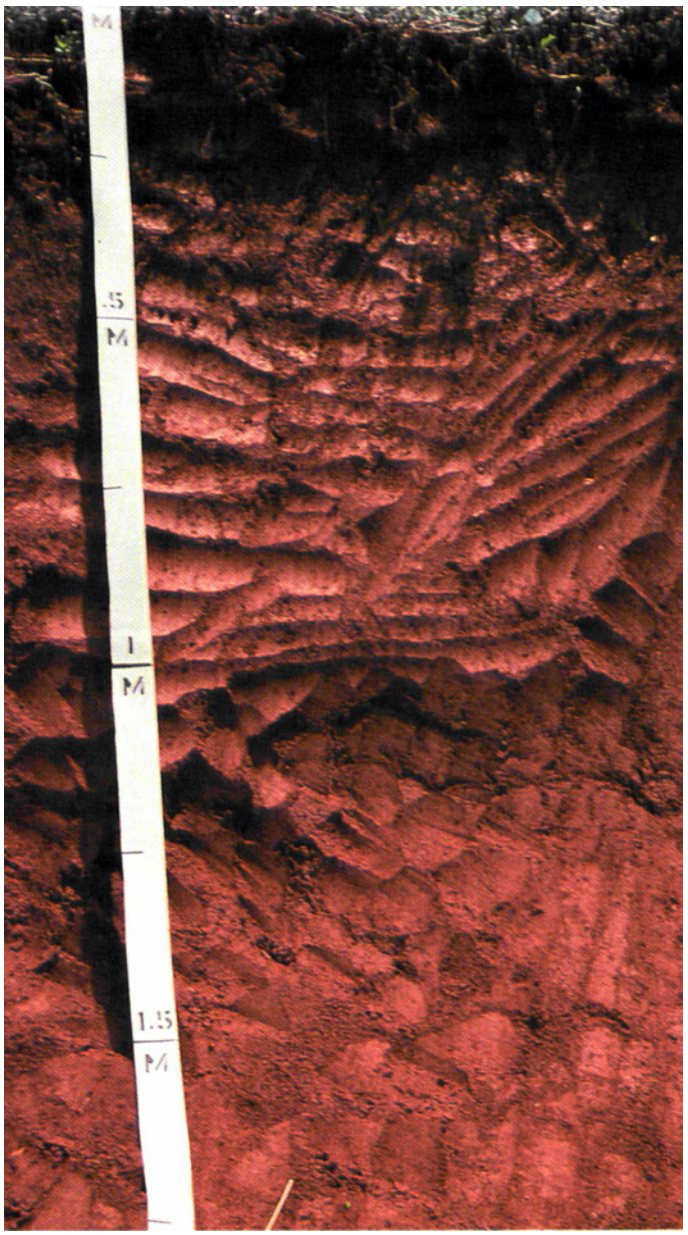

Figure 8.—Profile of Greenville sandy loam. This soil has a very deep, dark red, clayey subsoil.

Figure 9.—Profile of Lakeland sand. A thin A horizon overlies a deep layer of sand. The sand extends below a depth of 2 meters.

Figure 10.—Profile of Nankin sandy loam. Nankin soils are the most extensive soils in the survey area.

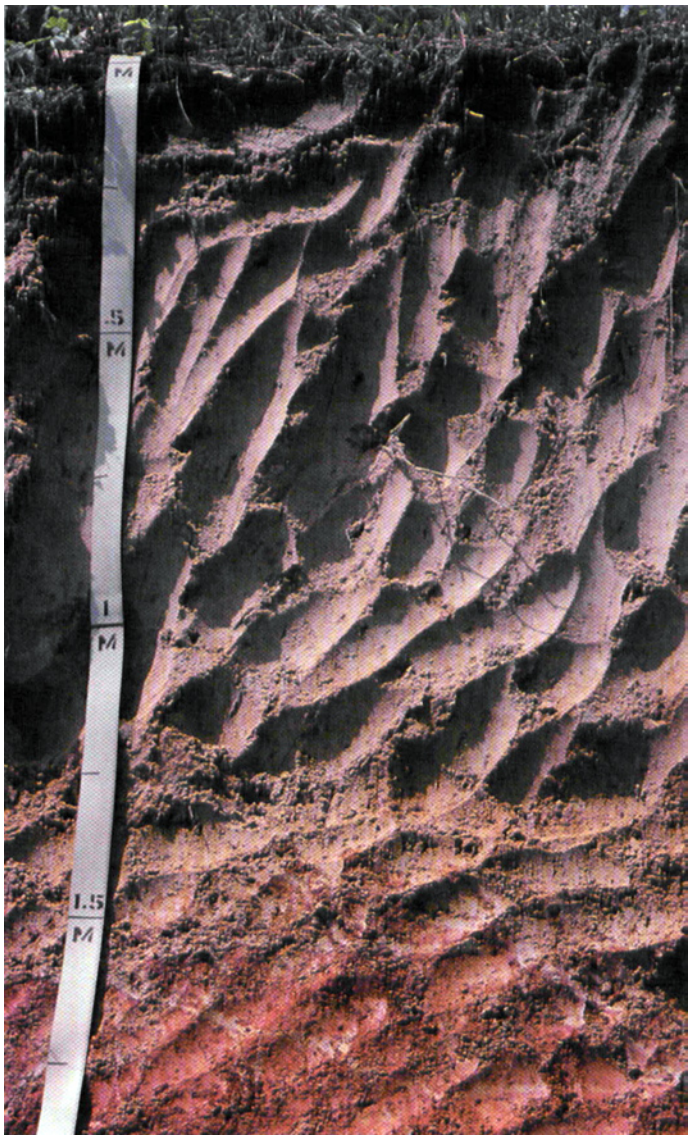

Figure 11.—Profile of Troup loamy sand. A sandy epipedon extends to a red subsoil, which occurs at a depth of about 140 centimeters.

of peds; very strongly acid; gradual smooth boundary.

Bt1—14 to 44 inches; dark red (2.5YR 3/6) sandy clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; common fine ironstone nodules; common medium rounded manganese concretions; very strongly acid; gradual smooth boundary.

Bt2—44 to 80 inches; dark red (2.5YR 3/6) sandy clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; common fine ironstone nodules; common medium rounded manganese concretions; very strongly acid.

Range in Characteristics

Thickness of the solum: 80 inches or more
Ironstone nodules: 0 to 10 percent in the Bt horizon
Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—5 to 10 inches
Color—hue of 2.5YR or 5YR, value of 3 or 4, and chroma of 2 to 4
Texture—sandy loam or sandy clay loam

BA horizon:
Color—hue of 2.5YR or 5YR, value of 3, and chroma of 4 to 6
Texture—sandy loam or sandy clay loam

Bt horizon, upper part:
Color—hue of 2.5YR, value of 3, and chroma of 4 to 6

Bt horizon, lower part:
Color—hue of 2.5YR, value of 3, and chroma of 4 to 6
Mottles—none to common, shades of brown
Texture—sandy clay or clay

Iuka Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Parent material: Stratified loamy and sandy alluvial sediments
Depth to high water table: 1 to 3 feet
Landscape position: Flood plains
Slope range: 0 to 2 percent
Classification: Coarse-loamy, siliceous, acid, thermic Aquic Udifluvents

Geographically Associated Soils

- Ochlockonee soils, which do not have mottles with chroma of 2 or less within a depth of 20 inches
- Bibb soils, which are dominantly gray in the upper 12 inches and are seasonally saturated with water near the surface
- Nankin soils, which are on uplands and are well drained

Typical Pedon

Iuka sandy loam, occasionally flooded; 1.3 miles east on Georgia Highway 26 from its junction with U.S. Highway 280 near Cusseta, 1.6 miles north on a county road, 300 feet west of the road; Chattahoochee County:

Ap—0 to 5 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; friable; common fine roots; very strongly acid; clear smooth boundary.

C1—5 to 8 inches; yellowish brown (10YR 5/4) sandy loam; common medium prominent reddish brown (5YR 4/4) mottles; weak fine granular structure; friable; few fine roots; very strongly acid; clear smooth boundary.

C2—8 to 36 inches; yellowish brown (10YR 5/6) sandy loam; common medium prominent light brownish gray (10YR 6/2) and reddish brown (5YR 4/4) and few fine prominent red (2.5YR 5/6) mottles; weak medium granular structure; friable; thin strata of loamy sand; very strongly acid; gradual smooth boundary.

Cg—36 to 80 inches; light brownish gray (10YR 6/2) sandy loam; common medium prominent yellowish brown (10YR 5/6) and reddish yellow (5YR 6/8) mottles; massive; friable; very strongly acid.

Range in Characteristics

Depth to mottles with chroma of 2 or less: Less than 20 inches
Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—5 to 8 inches
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4

C horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 6
Mottles—shades of gray, red, or brown
Texture—sandy loam or loam

Cg horizon:
Color—horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 or is mottled in shades of gray, brown, or red
Mottles—shades of gray, red, or brown
Texture—sandy loam or sandy clay loam

Lakeland Series

Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Parent material: Sandy marine sediments
Landscape position: Ridgetops and hillsides
Slope range: 0 to 25 percent
Classification: Thermic, coated Typic Quartzipsamments

Geographically Associated Soils

• Lucy soils, which have an argillic horizon within a depth of 40 inches
• Troup soils, which have an argillic horizon within a depth of 80 inches

Typical Pedon

Lakeland sand, 0 to 5 percent slopes; 11.1 miles north on Highway 41 from its junction with Georgia Highway 26, about 0.3 mile west on a dirt road, 200 feet south of the road; Marion County:

A—0 to 4 inches; very dark grayish brown (10YR 3/2) sand; single grained; loose; common fine and medium roots; few uncoated sand grains; strongly acid; clear wavy boundary.
C1—4 to 22 inches; strong brown (7.5YR 5/6) sand; single grained; loose; few fine roots; few uncoated sand grains; very strongly acid; gradual wavy boundary.
C2—22 to 60 inches; strong brown (7.5YR 5/8) sand; single grained; loose; many fine uncoated sand grains; very strongly acid; gradual wavy boundary.
C3—60 to 80 inches; reddish yellow (7.5YR 6/8) sand; single grained; loose; many fine uncoated sand grains; very strongly acid.

Range in Characteristics

Thickness of the sand: 81 inches or more (fig. 9)
Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—4 to 8 inches
Color—hue of 10YR, value of 3 to 5, and chroma of 1 to 3

C horizon:
Color—hue of 5YR to 10YR, value of 5 to 7, and chroma of 4 to 8

Lucy Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid in the A and E horizons and moderate in the Bt horizon
Parent material: Sandy and loamy marine sediments
Landscape position: Broad ridgetops and hillsides
Slope range: 0 to 8 percent
Classification: Loamy, siliceous, thermic Arenic Kandiudults

Geographically Associated Soils

• Fuquay soils, which have horizons containing more than 5 percent plinthite
• Lakeland soils, which do not have an argillic horizon within a depth of 80 inches
• Troup soils, which have a sandy epipedon that is 41 to 70 inches thick
• Orangeburg soils, which do not have a sandy epipedon as much as 20 inches thick

Typical Pedon

Lucy loamy sand, 0 to 5 percent slopes; 0.9 mile generally south on Georgia Highway 240 from its junction with Georgia Highway 137 in Tazewell, 100 feet north of Georgia Highway 240; Marion County:

Ap—0 to 10 inches; dark brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.
E—10 to 26 inches; strong brown (7.5YR 5/6) loamy sand; weak fine granular structure; very friable; common fine roots; strongly acid; gradual smooth boundary.
Bt1—26 to 36 inches; yellowish red (5YR 5/6) sandy loam; weak medium subangular blocky structure; friable; strongly acid; diffuse wavy boundary.
Bt2—36 to 80 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; strongly acid.

Range in Characteristics

Thickness of the solum: 60 inches or more
Thickness of the sandy epipedon: 20 to 40 inches
Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—4 to 10 inches
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4

E horizon:
Color—hue of 7.5YR or 10YR and value and chroma of 4 to 6

BE horizon (if it occurs):
Color—hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 6 to 8

Texture—loamy sand or sandy loam

Bt horizon:

Color—hue of 2.5YR of 5YR, value of 4 or 5, and chroma of 6 to 8

Texture—sandy loam or sandy clay loam in the upper part; sandy clay loam in the lower part

Nankin Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Parent material: Loamy and clayey marine sediments
Landscape position: Ridgetops and hillsides (fig. 10)
Slope range: 2 to 35 percent
Classification: Clayey, kaolinitic, thermic Typic Kanhapludults

Geographically Associated Soils

• Dothan soils, which are in a fine-loamy family and have 5 percent or more plinthite in the Bt horizon in some pedons
• Esto soils, which have more clay in the lower part than the Nankin soils
• Fuquay soils, which have a sandy epipedon that is 20 to 40 inches thick
• Orangeburg soils, which are in a fine-loamy family

Typical Pedon

Nankin sandy loam, 2 to 5 percent slopes; 2.5 miles south on County Road 17 from its junction with Georgia Highway 26 and Zion Hill Church, 0.1 mile west on a dirt road, 20 feet south of the road; Chattahoochee County:

Ap—0 to 5 inches; yellowish brown (10YR 5/4) sandy loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

Bt1—5 to 12 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common distinct clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—12 to 30 inches; yellowish red (5YR 4/6) sandy clay; common medium prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; few fine roots; common prominent clay films on faces of peds; very strongly acid; abrupt wavy boundary.

Bt3—30 to 44 inches; strong brown (7.5YR 5/8) and yellowish red (5YR 4/6) sandy clay loam; common medium prominent light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; firm; few fine roots; many prominent clay films on faces of peds; very strongly acid; gradual wavy boundary.

BC—44 to 60 inches; mottled yellowish red (5YR 4/6), light gray (10YR 7/2), and strong brown (7.5YR 5/8) sandy clay loam; weak medium subangular blocky structure; firm; few fine roots; many distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

C—60 to 80 inches; mottled light gray (10YR 7/2), yellowish red (5YR 4/6), and strong brown (7.5YR 5/8) sandy clay loam; massive; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 65 inches
Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

A horizon:

Thickness—5 to 9 inches

Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4

Texture—sandy loam or sandy clay loam

Bt horizon:

Color—hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 6 to 8

Mottles—shades of red, brown, or yellow; gray mottles are in the lower part of the horizon in some pedons

Texture—sandy clay loam, sandy clay, or clay

BC horizon:

Color—mottled in shades of red, yellow, brown, or gray

Texture—sandy loam or sandy clay loam

C horizon:

Color—mottled in shades of red, yellow, brown, or gray

Texture—sandy loam or sandy clay loam; some pedons have veins and thin strata of sandy clay or loamy sand

Ochlockonee Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy alluvial sediments
Depth to high water table: 3 to 5 feet
Landscape position: Flood plains
Slope range: 0 to 3 percent
Classification: Coarse-loamy, siliceous, acid, thermic Typic Udifluvents

Geographically Associated Soils

• Bibb soils, which are in the lower landscape positions and are poorly drained

• Bigbee soils, which are on low terraces along streams and are excessively drained

Typical Pedon

Ochlockonee sandy loam, rarely flooded; in Fort Benning Military Reservation, 250 feet generally north of Ochillee Creek on Hourglass Road, 100 feet west of the road; Chattahoochee County:

A—0 to 5 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; friable; few fine roots; strongly acid; clear smooth boundary.

C1—5 to 10 inches; brownish yellow (10YR 6/6) sandy loam; massive; friable; few fine roots; very strongly acid; gradual wavy boundary.

C2—10 to 18 inches; strong brown (7.5YR 5/6) silt loam; massive; friable; few medium roots; very strongly acid; gradual wavy boundary.

C3—18 to 40 inches; yellowish brown (10YR 5/6) sandy loam; massive; friable; very strongly acid; gradual wavy boundary.

C4—40 to 80 inches; brownish yellow (10YR 6/6) loamy sand; massive; very friable; thin strata of light gray (10YR 7/2) sandy loam; very strongly acid.

Range in Characteristics

Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—5 to 10 inches
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2

C horizon:
Color—hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6
Mottles—below a depth of 20 inches, shades of brown or gray
Texture—loamy sand, sandy loam, or silt loam

Orangeburg Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy and clayey marine sediments
Landscape position: Ridgetops and hillsides
Slope range: 2 to 12 percent
Classification: Fine-loamy, siliceous, thermic Typic Kandiudults

Geographically Associated Soils

• Dothan soils, which have a Bt horizon containing 5 percent or more plinthite
• Greenville soils, which are in a clayey family
• Lucy soils, which have a sandy epipedon that is 20 to 40 inches thick
• Vaucluse soils, which have less clay in the lower part than the Orangeburg soils

Typical Pedon

Orangeburg loamy sand, 2 to 5 percent slopes; 5.5 miles south on Georgia Highway 41 from its junction with Georgia Highway 26 in Buena Vista, 100 feet east of the road, in a cultivated field; Marion County:

Ap—0 to 8 inches; dark brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; many fine roots; few fine ironstone nodules; slightly acid; abrupt smooth boundary.

Bt1—8 to 15 inches; yellowish red (5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; many fine roots; few fine pores; few faint clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2—15 to 58 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; many fine and very fine pores; common distinct clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt3—58 to 80 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine pores; common distinct clay films on faces of peds; strongly acid.

Range in Characteristics

Thickness of the solum: 80 inches or more
Ironstone nodules: 0 to 10 percent throughout the profile
Reaction: Very strongly acid or strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—6 to 10 inches
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—loamy sand or sandy loam

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8
Texture—sandy loam or sandy clay loam in the upper part; sandy clay loam or sandy clay in the lower part

Red Bay Series

Depth class: Very deep
Drainage class: Well drained

Permeability: Moderate
Parent material: Loamy marine sediments
Landscape position: Ridgetops and hillsides
Slope range: 2 to 8 percent
Classification: Fine-loamy, siliceous, thermic Rhodic Kandiudults

Geographically Associated Soils

- Greenville soils, which are in a clayey family
- Lucy soils, which have a sandy epipedon that is 20 to 40 inches thick
- Orangeburg soils, which have moist value of 4 or more
- Troup soils, which have a sandy epipedon that is 41 to 70 inches thick

Typical Pedon

Red Bay loamy sand, 2 to 5 percent slopes; 2.8 miles south on Georgia Highway 41 from its junction with Georgia Highway 26, about 900 feet west of the highway; Marion County:

Ap—0 to 8 inches; dark reddish brown (5YR 3/3) loamy sand; weak fine granular structure; very friable; common fine roots; strongly acid; abrupt smooth boundary.

Bt1—8 to 18 inches; dark red (2.5YR 3/6) sandy clay loam; weak fine subangular blocky structure; friable; common fine roots; sand grains coated and bridged with clay; old root channels filled with material from Ap horizon; very strongly acid; clear smooth boundary.

Bt2—18 to 56 inches; dark red (2.5YR 3/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt3—56 to 80 inches; dark red (2.5YR 3/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; very strongly acid.

Range in Characteristics

Thickness of the solum: 60 inches or more
Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

Ap horizon:
Thickness—5 to 8 inches
Color—hue of 2.5YR to 7.5YR, value of 3 or 4, and chroma of 2 to 4

Bt horizon:
Color—hue of 10R or 2.5YR, value of 3, and chroma of 4 to 6

Troup Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Rapid in the A and E horizons and moderate in the Bt horizon
Parent material: Sandy and loamy marine sediments
Landscape position: Ridgetops and hillsides
Slope range: 2 to 25 percent
Classification: Loamy, siliceous, thermic Grossarenic Kandiudults

Geographically Associated Soils

- Lakeland soils, which do not have an argillic horizon
- Lucy soils, which have a sandy epipedon that is 20 to 40 inches thick
- Orangeburg soils, which are in the slightly higher landscape positions and which do not have a sandy epipedon as much as 20 inches thick

Typical Pedon

Troup loamy sand, 2 to 5 percent slopes; approximately 0.5 mile east on Georgia Highway 127 from its junction with Georgia Highway 41, about 200 feet south of the road; Marion County:

Ap—0 to 4 inches; brown (10YR 5/3) loamy sand; weak fine granular structure; very friable; common very fine roots; strongly acid; clear smooth boundary.

E1—4 to 16 inches; light yellowish brown (10YR 6/4) loamy sand; single grained; loose; common very fine roots; strongly acid; gradual wavy boundary.

E2—16 to 46 inches; yellowish red (5YR 5/8) sand; single grained; loose; common very fine roots; strongly acid; gradual wavy boundary.

E3—46 to 68 inches; yellowish red (5YR 5/8) sand; single grained; loose; few fine roots; strongly acid; gradual wavy boundary.

Bt1—68 to 78 inches; red (2.5YR 5/8) sandy loam; weak medium subangular blocky structure; very friable; few fine roots; strongly acid; gradual wavy boundary.

Bt2—78 to 80 inches; red (2.5YR 4/8) sandy clay loam; weak medium subangular blocky structure; very friable; strongly acid.

Range in Characteristics

Thickness of the solum: 80 inches or more
Thickness of the sandy epipedon: 41 to 70 inches (fig. 11)
Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—3 to 8 inches

Color—hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 2 to 4

E horizon:
Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—sand or loamy sand

BE horizon (if it occurs):
Color—hue of 5YR to 10YR, value of 5 or 6, and chroma of 6 to 8

Bt horizon:
Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 6 to 8
Texture—sandy loam or sandy clay loam

Vaucluse Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the Bt horizon and moderately slow or slow in the Btx horizon
Parent material: Loamy marine sediments
Landscape position: Ridgetops and hillsides
Slope range: 5 to 25 percent
Classification: Fine-loamy, siliceous, thermic Typic Kanhapludults

Geographically Associated Soils

- Ailey soils, which have a sandy epipedon that is 20 to 40 inches thick
- Lakeland soils, which are sandy throughout
- Nankin soils, which are in a clayey family
- Troup soils, which have a sandy epipedon that is 41 to 70 inches thick

Typical Pedon

Vaucluse loamy sand in an area of Vaucluse and Ailey soils, 5 to 12 percent slopes; 2.7 miles west on Georgia Highway 26 from its junction with Georgia Highway 41 in Buena Vista, 0.2 mile north on Murray Farm Road (County Road 108), 50 feet west of the road; Marion County:

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

E—4 to 10 inches; yellowish brown (10YR 5/4) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; gradual wavy boundary.

Bt—10 to 28 inches; yellowish red (5YR 5/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; slightly hard; firm; slightly sticky; few fine and medium roots; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btx—28 to 60 inches; red (2.5YR 5/8) sandy clay loam; many medium prominent strong brown (7.5YR 5/6) and yellowish red (5YR 5/6) mottles; massive; hard; firm; brittle; slightly sticky in about 50 percent of mass; few fine roots; many distinct clay films on faces of peds; few fine prominent white particles of kaolin; very strongly acid; gradual wavy boundary.

BC—60 to 80 inches; mottled yellowish red (5YR 5/8), red (2.5YR 4/6), light gray (10YR 7/2), and yellowish brown (10YR 5/8) sandy loam; weak medium subangular blocky structure; friable; strongly acid.

Range in Characteristics

Thickness of the solum: 60 to 80 inches or more
Ironstone nodules: None to common on the surface
Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas
Distinctive features: 20 to 60 percent brittleness in the Btx horizon

A horizon:
Thickness—4 to 8 inches
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3

E horizon (if it occurs):
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 6

Bt horizon:
Color—hue of 2.5YR to 10YR, value of 4 or 5, and chroma of 4 to 8
Mottles—shades of brown
Texture—sandy loam or sandy clay loam

Btx horizon:
Color—horizon has hue of 2.5YR to 7.5YR, value of 4 to 7, and chroma of 4 to 8 or is mottled in shades of red, brown, yellow, or gray
Mottles—chroma of 0 to 2
Texture—sandy loam or sandy clay loam

BC horizon (if it occurs):
Color—horizon has hue of 2.5YR to 7.5YR, value of 4 to 7, and chroma of 4 to 8 or is mottled in shades of red, brown, yellow, or gray
Mottles—shades of red, brown, yellow, or gray
Texture—loamy sand or sandy loam

Wahee Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Slow

Parent material: Clayey marine sediments
Depth to high water table: 0.5 foot to 1.5 feet
Landscape position: Stream terraces
Slope range: 0 to 2 percent
Classification: Clayey, mixed, thermic Aeric Endoaquults

Geographically Associated Soils

- Nankin soils, which are on upland ridges and hillsides and are well drained
- Lucy soils, which are on uplands, are well drained, and have a sandy epipedon that is 20 to 40 inches thick

Typical Pedon

Wahee fine sandy loam, 0 to 2 percent slopes, rarely flooded; 8.3 miles generally west on River Bend Park Road from its junction with U.S. Highway 27 (south of Cusseta), 0.1 mile north on a paved road to River Bend Park, 100 feet north of the paved road; Chattahoochee County:

A—0 to 3 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

Bt—3 to 16 inches; yellowish brown (10YR 5/4) clay loam; few fine distinct gray (10YR 6/1) and common medium prominent yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; hard; firm; plastic and sticky; few fine roots; few fine pores; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg1—16 to 25 inches; gray (10YR 6/1) clay; common medium prominent yellowish brown (10YR 5/6) and yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; hard; firm; plastic and sticky; few fine roots; few fine pores; common distinct clay films on faces of peds; very strongly acid; clear smooth boundary.

Btg2—25 to 42 inches; gray (10YR 6/1) clay; common medium prominent yellowish brown (10YR 5/6) and yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; hard; firm; sticky and plastic; few fine roots; few fine pores; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg3—42 to 58 inches; mottled gray (10YR 6/1), yellowish red (5YR 5/8), and yellowish brown (10YR 5/4) clay; moderate medium subangular blocky structure; firm; few fine roots; few fine pores; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg4—58 to 80 inches; mottled gray (10YR 6/1), yellowish brown (10YR 5/8), and yellowish red (5YR 5/8) clay; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; very strongly acid.

Range in Characteristics

Thickness of the solum: 80 inches or more
Reaction: Strongly acid or very strongly acid throughout the profile except for the surface layer in limed areas

A horizon:
Thickness—3 to 8 inches
Color—hue of 10YR, value of 2 to 4, and chroma of 1 or 2

Bt horizon:
Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 3 to 6
Mottles—shades of gray or red
Texture—clay loam or clay

Btg horizon:
Color—horizon has hue of 10YR or 2.5Y or is neutral in hue and has value of 5 or 6 and chroma of 0 to 2 or it is mottled in shades of gray, yellow, or red
Mottles—shades of brown or red

BC horizon (if it occurs):
Color—mottled in shades of gray, red, brown, or yellow

The Wahee soils in this survey area are considered taxadjuncts to the series because they have more clay in the lower part of the Btg horizon than is defined as the range for the series. This difference, however, does not significantly affect the use and management of the soils.

Formation of the Soils

This section describes the factors of soil formation and relates them to the soils in Chattahoochee and Marion Counties.

Soil forms through the interaction of parent material, living organisms, climate, relief, and time *(3)*. All of these factors influence the characteristics of each soil, but the relative importance of each factor varies from place to place. In some areas one soil-forming factor may dominate and determine most of a soil's properties; in other areas a different factor may dominate. The relationships between the factors of soil formation are complex, and the effect of any one factor cannot be isolated from the others.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. It is largely responsible for the chemical and mineralogical composition of the soil. Differences in parent materials in the survey area are largely the result of the ways in which sands, silts, and clays were sorted and deposited. Most of the soils formed in Cretaceous sediments *(4)*. Geologic units in the survey area include the Tuscaloosa Formation, the Blufftown Formation, the Cussetta Sand, the Ripley Formation, and the Providence Sand. Tertiary marine sediments occur in the southern part of Marion County. Clear lines of distinction between the formations are difficult to establish. Generally, the major soils that developed from Cretaceous sediments are Troup, Nankin, Ailey, and Cowarts soils. Orangeburg, Greenville, and Red Bay soils are the major soils that developed from Tertiary sediments.

Nearly level soils on flood plains formed in recent alluvium and are less developed than most of the soils on uplands. Many of these soils are occasionally or frequently flooded and receive sediments during periods of flooding. Bibb, Chastain, Iuka, and Ochlockonee soils are the major soils on flood plains.

Climate

Climate affects the formation of soil through its influence on the type and rate of weathering of parent materials, on the removal and redeposition of materials, and on the decomposition of minerals and organic matter. It also affects biological activities in the soil and the leaching and movement of weathered materials.

Chattahoochee and Marion Counties have a warm, humid climate. The average winter temperature is about 47 degrees F, the average summer temperature is about 78 degrees F, and the average annual rainfall is about 52 inches. The warm climate promotes the rapid weathering of parent materials and the decomposition of organic matter. Most of the precipitation moves down through the soil. Dissolved or suspended materials in the soil are carried downward. Because of the amount of rainfall and the temperatures, most of the soils in the survey area have relatively low natural fertility and a low content of organic matter and are strongly acid.

Relief

Relief influences soil formation through its effect on runoff, the movement of water within the soil, plant cover, and soil temperature. The length, shape, and steepness of slopes affect runoff. Soils on the steeper slopes generally have more runoff than soils in the less sloping areas. As a result, erosion is greater and less water moves through the soil on the steeper slopes.

Relief indirectly affects the color of the soil. Dothan and Cowarts soils are well drained, are on uplands, and have a dominantly yellowish brown subsoil. Bibb and Chastain soils are poorly drained, are on the lower flood plains, and are dominantly grayish. The colors are affected by differences in wetness, which is influenced by relief.

Living Organisms

Plants, animals, bacteria, and other organisms are active in soil formation. They provide organic matter to the soil, recycle plant nutrients, mix the soil, and stabilize the soil. Most of the soils in the survey area formed under a forest of hardwoods and pines. The trees supply most of the organic matter to the soils in the survey area.

Plants provide a cover that helps to control erosion

and stabilizes the soil. Plant roots break up soil particles, develop channels that allow water movement, and recycle nutrients to the surface. Burrowing animals mix the soil and develop channels that allow water and air movement. Earthworms, insects, and micro-organisms break down plant residues and continually mix the soil and organic matter.

Time

The characteristics of the soil depend on the length of time that soil-forming factors have been active. Most of the soils in the survey area have been in place long enough for the development of distinct horizons. The surface layer contains an accumulation of organic matter. Silicate clays have formed, moved downward, and accumulated in the subsoil. Depending on natural drainage conditions, oxidation and reduction of iron have also affected the soils. Many of the soils, such as Orangeburg soils, are well drained and have a red subsoil with a high content of oxidized iron. A few soils that are not so well drained, such as Chastain soils, have a gray subsoil with reduced iron. A large amount of calcium, magnesium, potassium, and other weatherable minerals has been removed from the soils in the survey area through leaching, and the amount of exchangeable hydrogen has increased.

Differences in the length of time cause differences among soils in their degree of profile development. Orangeburg soils have been in place long enough for the formation of a subsoil that has an accumulation of clay and for the development of soil structure. Bibb and Ochlockonee soils, however, are on flood plains and have not been in place long enough for distinct horizons to develop.

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Glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bottom land. The normal flood plain of a stream, subject to flooding.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay are in the soil. The soil is not a source of gravel or sand for construction purposes.

Fast intake (in tables). The movement of water into the soil is rapid.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

Galled spots. Areas where the soil is infertile because of past cultivation, the removal of soil material, or erosion.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much

as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gully. A very small channel with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:
O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.
A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.
E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.
B horizon.—The mineral horizon below an O, A, or E horizon. The B horizon is in part a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.
C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.
R layer.—Consolidated rock (unweathered bedrock) beneath the soil. The rock commonly underlies a C horizon but can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:
Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.
Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.
Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.
Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.
Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.
Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.
Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.
Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.
Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Low	less than 1 percent
Moderately low	1 to 2 percent
Moderate	2 to 4 percent
High	4 to 8 percent

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water to move through the profile. Permeability is measured as the number of inches per hour that water moves through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Subsurface tunnels or pipelike cavities are formed by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay and quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is also exposed to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Poor filter (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of the acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated,

weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments ranging from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saprolite (soil science). Unconsolidated, residual material underlying the soil and grading to hard bedrock below.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, the slope classes are:

Nearly level	0 to 2 percent
Very gently sloping	2 to 5 percent
Gently sloping	5 to 8 percent
Strongly sloping	8 to 12 percent
Moderately steep	12 to 25 percent
Steep	25 to 35 percent

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Suitability ratings. Ratings for the degree of suitability of soils for crops, pasture, woodland, urban uses, and recreational development. The ratings and general criteria are as follows:

Well suited.—The soil has properties favorable for the use.

Moderately suited.—The soil has properties moderately favorable for the use. One or more soil properties make the soil less desirable than soils rated well suited. More intensive management is needed to maintain the resource base.

Poorly suited.—The soil has one or more properties unfavorable for the use. Overcoming the unfavorable property requires special design, extra maintenance, or costly alteration.

Unsuited.—The expected performance of the soil is unacceptable for the use, or extreme measures are needed to overcome the unfavorable properties or qualities.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). An otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1951-88 at Talbotton, Georgia)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	57.0	32.8	44.9	75	7	86	4.87	2.51	6.89	7	0.3
February	61.7	35.1	48.4	80	13	91	5.23	2.69	7.10	7	.5
March	69.3	41.9	55.6	85	22	217	6.10	2.97	8.50	7	.0
April	77.7	49.5	63.6	90	30	408	4.47	1.63	6.75	5	.0
May	83.7	56.7	70.2	95	39	626	3.99	1.99	5.67	6	.0
June	88.9	64.1	76.5	100	48	795	4.30	2.17	6.08	6	.0
July	90.7	67.3	79.0	101	57	899	5.16	2.44	6.86	8	.0
August	90.7	67.0	78.9	99	56	896	3.88	2.08	5.44	6	.0
September	86.1	61.9	74.0	97	44	720	3.85	1.40	5.56	5	.0
October	77.9	50.1	64.0	90	29	439	2.51	.51	3.96	3	.0
November	68.6	41.0	54.8	84	21	180	3.38	1.72	4.83	5	.0
December	60.2	35.3	47.8	77	12	93	4.93	2.48	6.95	6	.0
Yearly:											
Average	76.0	50.2	63.1	---	---	---	---	---	---	---	---
Extreme	---	---	---	102	5	---	---	---	---	---	---
Total	---	---	---	---	---	5,450	52.67	43.97	61.56	71	.8

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1951-88 at Talbotton, Georgia)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Mar. 23	Apr. 8	Apr. 18
2 years in 10 later than--	Mar. 14	Mar. 31	Apr. 12
5 years in 10 later than--	Feb. 26	Mar. 15	Apr. 2
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 9	Oct. 26	Oct. 16
2 years in 10 earlier than--	Nov. 14	Oct. 31	Oct. 21
5 years in 10 earlier than--	Nov. 26	Nov. 11	Oct. 31

TABLE 3.--GROWING SEASON

(Recorded in the period 1951-88 at Talbotton, Georgia)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	239	215	192
8 years in 10	251	224	198
5 years in 10	273	240	211
2 years in 10	294	257	224
1 year in 10	306	266	231

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Chattahoochee County	Marion County	Total-- Area	Total-- Extent
		Acres	Acres	Acres	Pct
AaB	Ailey loamy coarse sand, 2 to 5 percent slopes	863	2,468	3,331	0.8
AaC	Ailey loamy coarse sand, 5 to 8 percent slopes	2,470	3,434	5,904	1.5
Bh	Bibb sandy loam, frequently flooded	8,360	16,797	25,157	6.4
BoC	Bigbee-Ochlockonee complex, 0 to 5 percent slopes, occasionally flooded	793	0	793	0.2
Ch	Chastain loam, frequently flooded	1,486	0	1,486	0.4
COC	Cowarts and Ailey soils, 5 to 12 percent slopes	2,966	5,860	8,826	2.2
COD	Cowarts and Ailey soils, 12 to 18 percent slopes	6,860	0	6,860	1.7
COE	Cowarts and Ailey soils, 12 to 25 percent slopes	2,440	31,203	33,643	8.5
CwE	Cowarts and Ailey soils, 18 to 25 percent slopes	5,302	0	5,302	1.3
DoB	Dothan loamy sand, 2 to 5 percent slopes	200	3,401	3,601	0.9
DoC	Dothan loamy sand, 5 to 8 percent slopes	191	1,470	1,661	0.4
EmB	Esto sandy loam, 2 to 5 percent slopes	336	0	336	0.1
EmC	Esto sandy loam, 5 to 8 percent slopes	213	0	213	0.1
EmD	Esto sandy loam, 8 to 15 percent slopes	70	0	70	*
EtA	Eunola sandy loam, 0 to 3 percent slopes, occasionally flooded	452	0	452	0.1
FuB	Fuquay loamy sand, 0 to 5 percent slopes	673	2,185	2,858	0.7
FuC	Fuquay loamy sand, 5 to 8 percent slopes	370	1,162	1,532	0.4
GrA	Greenville sandy loam, 0 to 2 percent slopes	0	766	766	0.2
GrB	Greenville sandy loam, 2 to 5 percent slopes	0	1,315	1,315	0.3
GvC2	Greenville sandy clay loam, 5 to 8 percent slopes, eroded	0	175	175	*
GvD2	Greenville sandy clay loam, 8 to 12 percent slopes, eroded	0	257	257	0.1
Iu	Iuka sandy loam, occasionally flooded	4,165	5,311	9,476	2.4
LaB	Lakeland sand, 0 to 5 percent slopes	1,721	19,827	21,548	5.5
LaC	Lakeland sand, 5 to 12 percent slopes	1,611	5,829	7,440	1.9
LaD	Lakeland sand, 12 to 18 percent slopes	934	0	934	0.2
LaE	Lakeland sand, 12 to 25 percent slopes	0	825	825	0.2
LkE	Lakeland sand, 18 to 25 percent slopes	40	0	40	*
LuB	Lucy loamy sand, 0 to 5 percent slopes	758	5,036	5,794	1.5
LuC	Lucy loamy sand, 5 to 8 percent slopes	1,251	2,947	4,198	1.1
NaB	Nankin sandy loam, 2 to 5 percent slopes	2,283	1,286	3,569	0.9
NaC	Nankin sandy loam, 5 to 12 percent slopes	10,240	9,032	19,272	4.9
NkC3	Nankin sandy clay loam, 5 to 12 percent slopes, severely eroded	7,710	0	7,710	2.0
NkD3	Nankin sandy clay loam, 12 to 18 percent slopes, severely eroded	8,046	0	8,046	2.0
NkE3	Nankin sandy clay loam, 12 to 25 percent slopes, severely eroded	13,115	6,260	19,375	4.9
NnE3	Nankin sandy clay loam, 18 to 25 percent slopes, severely eroded	8,617	0	8,617	2.2
NnF3	Nankin sandy clay loam, 25 to 35 percent slopes, severely eroded	1,025	0	1,025	0.3
Oc	Ochlockonee sandy loam, rarely flooded	2,076	0	2,076	0.5
OrB	Orangeburg loamy sand, 2 to 5 percent slopes	510	11,836	12,346	3.1
OrC	Orangeburg loamy sand, 5 to 8 percent slopes	520	10,511	11,031	2.8
OrD2	Orangeburg sandy loam, 8 to 12 percent slopes, eroded	73	917	990	0.3
OuB	Orangeburg-Urban land complex, 2 to 5 percent slopes	732	198	930	0.2
Ps	Psamments	76	0	76	*
ReB	Red Bay loamy sand, 2 to 5 percent slopes	0	393	393	0.1
ReC	Red Bay loamy sand, 5 to 8 percent slopes	0	613	613	0.2
TrB	Troup loamy sand, 2 to 5 percent slopes	7,801	35,460	43,261	10.9
TrC	Troup loamy sand, 5 to 12 percent slopes	16,144	32,481	48,625	12.3
TrD	Troup loamy sand, 12 to 18 percent slopes	3,251	0	3,251	0.8
TrE	Troup loamy sand, 12 to 25 percent slopes	555	4,122	4,677	1.2
TuE	Troup loamy sand, 18 to 25 percent slopes	1,203	0	1,203	0.3
Ua	Udorthents, loamy	369	0	369	0.1
Ub	Udorthents-Urban land complex, 0 to 10 percent slopes	1,368	0	1,368	0.3
UdC	Urban land, 0 to 10 percent slopes	592	4	596	0.2
UoC	Urban land-Orangeburg complex, 0 to 10 percent slopes	627	0	627	0.2

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Chattahoochee County	Marion County	Total-- Area	Total-- Extent
		Acres	Acres	Acres	Pct
UtC	Urban land-Troup complex, 0 to 10 percent slopes	40	156	196	*
VAC	Vaucluse and Ailey soils, 5 to 12 percent slopes	50	805	855	0.2
VAE	Vaucluse and Ailey soils, 12 to 25 percent slopes	245	9,958	10,203	2.6
WbA	Wahee fine sandy loam, 0 to 2 percent slopes, rarely flooded	90	0	90	*
	Water	787	0	787	0.2
	Cantonment	22,414	0	22,414	5.7
	Impact areas	5,716	0	5,716	1.4
	Total	160,800	234,300	395,100	100.0

* Less than 0.1 percent.

TABLE 5.--IMPORTANT FARMLAND

(Only the soils that meet the soil criteria for prime farmland or additional farmland of statewide importance are listed)

Map symbol	Soil name	Prime farmland	Additional farmland of statewide importance
		Acres	Acres
AaB	Ailey loamy coarse sand, 2 to 5 percent slopes	---	3,331
AaC	Ailey loamy coarse sand, 5 to 8 percent slopes	---	5,904
CoC	Cowarts and Ailey soils, 5 to 12 percent slopes	---	8,826
DoB	Dothan loamy sand, 2 to 5 percent slopes	3,601	---
DtC2	Dothan sandy loam, 5 to 8 percent slopes	1,661	---
EmB	Esto sandy loam, 2 to 5 percent slopes	336	---
EmC	Esto sandy loam, 5 to 8 percent slopes	---	213
EtA	Eunola sandy loam, 0 to 3 percent slopes, occasionally flooded	452	---
FuB	Fuquay loamy sand, 0 to 5 percent slopes	---	2,858
FuC	Fuquay loamy sand, 5 to 8 percent slopes	---	1,532
GrA	Greenville sandy loam, 0 to 2 percent slopes	766	---
GrB	Greenville sandy loam, 2 to 5 percent slopes	1,315	---
GvC2	Greenville sandy clay loam, 5 to 8 percent slopes, eroded	---	175
LuB	Lucy loamy sand, 0 to 5 percent slopes	---	5,794
LuC	Lucy loamy sand, 5 to 8 percent slopes	---	4,198
NaB	Nankin sandy loam, 2 to 5 percent slopes	3,569	---
NaC	Nankin sandy loam, 5 to 12 percent slopes	---	19,272
Oc	Ochlockonee sandy loam, rarely flooded	---	2,076
OrB	Orangeburg loamy sand, 2 to 5 percent slopes	12,346	---
OrC	Orangeburg loamy sand, 5 to 8 percent slopes	11,031	---
OrD2	Orangeburg sandy loam, 8 to 12 percent slopes, eroded	---	990
ReB	Red Bay loamy sand, 2 to 5 percent slopes	393	---
ReC	Red Bay loamy sand, 5 to 8 percent slopes	613	---
TrB	Troup loamy sand, 2 to 5 percent slopes	---	43,261
WbA	Wahee fine sandy loam, 0 to 2 percent slopes, rarely flooded	---	90
	Total	36,083	98,520

TABLE 6.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Soil name and map symbol	Land capability	Corn	Soybeans	Peanuts	Wheat	Improved bermudagrass	Bahiagrass
		Bu	Bu	Lbs	Bu	AUM*	AUM*
AaB---- Ailey	IIIs	50	20	2,300	25	6.0	5.0
AaC---- Ailey	IVs	45	18	2,000	23	5.0	4.5
Bh---- Bibb	Vw	---	---	---	---	---	---
BoC:							
Bigbee----	IIIs	50	20	2,200	25	6.0	5.0
Ochlockonee----	IIw	110	40	3,800	40	8.0	7.0
Ch---- Chastain	VIIw	---	---	---	---	---	---
COC:							
Cowarts----	IVe	60	20	1,600	25	7.0	6.5
Ailey----	VIs	---	---	---	---	5.0	4.5
COD, COE:							
Cowarts----	VIe	---	---	---	---	6.5	---
Ailey----	VIIe	---	---	---	---	---	---
CwE:							
Cowarts----	VIIe	---	---	---	---	6.5	---
Ailey----	VIIe	---	---	---	---	---	---
DoB---- Dothan	IIe	120	35	3,600	44	10.5	9
DoC---- Dothan	IIIe	100	30	3,600	38	9.5	8
EmB---- Esto	IIIe	50	35	1,700	37	6.0	5.5
EmC---- Esto	IVe	40	30	1,500	32	5.8	4.8
EmD---- Esto	VIe	---	---	---	---	5.5	4.5
EtA---- Eunola	IIw	90	30	3,000	30	8.0	7.5
FuB---- Fuquay	IIs	85	30	2,900	38	7.5	7.0
FuC---- Fuquay	IIIs	75	25	2,600	31	7.0	7.0

See footnotes at end of table.

TABLE 6.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Soybeans	Peanuts	Wheat	Improved bermudagrass	Bahiagrass
		Bu	Bu	Lbs	Bu	AUM*	AUM*
GrA---------- Greenville	I	100	45	3,200	56	11	6.5
GrB---------- Greenville	IIe	95	35	3,000	50	11	6.5
GvC2---------- Greenville	IIIe	85	25	2,600	31	10	6.0
GvD2---------- Greenville	IVe	---	---	---	---	8.5	7.0
Iu---------- Iuka	IIw	110	40	3,800	40	9.0	8.5
LaB---------- Lakeland	IVs	55	20	2,000	25	7.0	6.0
LaC---------- Lakeland	VIs	---	---	---	---	6.5	5.0
LaD, LaE, LkE--- Lakeland	VIIs	---	---	---	---	6.0	5.0
LuB---------- Lucy	IIs	80	33	3,000	41	7.0	6.5
LuC---------- Lucy	IIIs	70	25	2,500	31	6.5	6.0
NaB---------- Nankin	IIe	75	30	2,200	38	9.0	7.0
NaC---------- Nankin	IVe	50	20	1,400	25	6.0	6.0
NkC3---------- Nankin	VIe	---	---	---	---	5.0	5.5
NkD3, NkE3, NnE3---------- Nankin	VIe	---	---	---	---	---	---
NnF3---------- Nankin	VIIe	---	---	---	---	---	---
Oc---------- Ochlockonee	I	110	40	3,800	40	8.0	7.0
OrB---------- Orangeburg	IIe	120	45	4,000	56	10.5	8.5
OrC---------- Orangeburg	IIIe	95	35	3,200	50	10.0	8.0
OrD2---------- Orangeburg	IVe	85	30	2,800	38	9.0	7.0

See footnotes at end of table.

TABLE 6.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Soybeans	Peanuts	Wheat	Improved bermudagrass	Bahiagrass
		Bu	Bu	Lbs	Bu	AUM*	AUM*
OuB**:							
Orangeburq-----	IIe	---	---	---	---	---	---
Urban land.							
ReB----------	IIe	120	45	3,600	56	9.5	8.5
Red Bay							
ReC----------	IIIe	100	35	2,800	50	9.0	8.0
Red Bay							
TrB----------	IIIs	60	25	2,200	31	7.5	6.5
Troup							
TrC, TrD-----	VIs	---	---	---	---	6.5	5.0
Troup							
TrE, TuE-----	VIIe	---	---	---	---	6.0	5.0
Troup							
UoC**:							
Urban land.							
Orangeburg-----	IIIe	---	---	---	---	---	---
UtC**:							
Urban land.							
Troup----------	IVs	---	---	---	---	---	---
VAC:							
Vaucluse-------	IIIe	60	20	1,700	25	7	6
Ailey----------	VIs	---	---	---	---	5.0	4.5
VAE:							
Vaucluse-------	VIe	---	---	---	---	7	6
Ailey----------	VIIe	---	---	---	---	---	---
WbA----------	IIw	110	45	3,200	45	8.5	8.0
Wahee							

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--CAPABILITY CLASSES AND SUBCLASSES

(Miscellaneous areas are excluded. Dashes indicate no acreage)

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I:				
Chattahoochee County	2,076	---	---	---
Marion County	766	---	---	---
II:				
Chattahoochee County	9,889	3,395	5,063	1,431
Marion County	30,871	18,339	5,311	7,221
III:				
Chattahoochee County	12,080	1,359	---	10,721
Marion County	55,289	13,252	---	42,037
IV:				
Chattahoochee County	16,514	12,305	---	4,209
Marion County	37,053	13,722	---	23,331
V:				
Chattahoochee County	8,360	---	8,360	---
Marion County	16,797	---	16,797	---
VI:				
Chattahoochee County	65,427	46,466	---	18,961
Marion County	71,931	30,955	---	40,976
VII:				
Chattahoochee County	14,432	11,972	1,486	974
Marion County	21,411	20,586	---	825
VIII:				
Chattahoochee County	---	---	---	---
Marion County	---	---	---	---

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available)

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
AaB, AaC---------- Ailey	8S	Slight	Moderate	Moderate	Slash pine----------	70	8	Slash pine, longleaf pine.
					Longleaf pine--------	60	4	
Bh---------- Bibb	11W	Slight	Severe	Severe	Loblolly pine--------	100	11	Loblolly pine, sweetgum, yellow-poplar.
					Sweetgum----------	90	7	
					Water oak----------	90	6	
					Blackgum----------	---	---	
					Yellow-poplar--------	---	---	
BoC**:								
Bigbee----------	9S	Slight	Slight	Moderate	Loblolly pine--------	88	9	Loblolly pine, slash pine, longleaf pine.
Ochlockonee-------	11A	Slight	Slight	Slight	Loblolly pine--------	100	11	Loblolly pine, yellow-poplar.
					Yellow-poplar--------	110	9	
					Slash pine----------	100	13	
					Sweetgum----------	90	7	
					Water oak----------	80	5	
Ch---------- Chastain	8W	Slight	Severe	Severe	Sweetgum----------	95	8	Sweetgum, baldcypress.
					Baldcypress----------	---	---	
					Water tupelo---------	---	---	
					Water oak----------	---	---	
COC**:								
Cowarts----------	9A	Slight	Slight	Slight	Loblolly pine--------	86	9	Loblolly pine, longleaf pine, slash pine.
					Slash pine----------	86	11	
					Longleaf pine--------	67	5	
Ailey----------	8S	Slight	Moderate	Moderate	Slash pine----------	70	8	Slash pine, longleaf pine.
					Longleaf pine--------	60	4	
COD**, COE**, CwE**:								
Cowarts----------	9R	Slight	Moderate	Slight	Loblolly pine--------	86	9	Loblolly pine, longleaf pine, slash pine.
					Slash pine----------	86	11	
					Longleaf pine--------	67	5	
Ailey----------	8S	Slight	Moderate	Moderate	Slash pine----------	70	8	Slash pine, longleaf pine.
					Longleaf pine--------	60	4	
DoB, DoC---------- Dothan	9A	Slight	Slight	Slight	Loblolly pine--------	88	9	Loblolly pine, slash pine, longleaf pine.
					Slash pine----------	92	12	
					Longleaf pine--------	84	8	
					Hickory----------	---	---	
					Water oak----------	---	---	
EmB, EmC, EmD------ Esto	8A	Slight	Slight	Slight	Loblolly pine--------	82	8	Loblolly pine, slash pine, longleaf pine.
					Longleaf pine--------	66	5	
					Slash pine----------	82	10	
EtA---------- Eunola	10W	Slight	Moderate	Slight	Loblolly pine--------	95	10	Loblolly pine, slash pine, sweetgum, yellow-poplar.
					Slash pine----------	95	12	
					Sweetgum----------	95	8	
					Yellow-poplar--------	95	7	

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
FuB, FuC---------- Fuquay	8S	Slight	Moderate	Moderate	Loblolly pine--------	85	8	Loblolly pine,
					Longleaf pine--------	77	7	longleaf pine, slash
					Slash pine----------	93	12	pine.
GrA, GrB---------- Greenville	8A	Slight	Slight	Slight	Loblolly pine--------	82	8	Loblolly pine,
					Longleaf pine--------	70	6	longleaf pine, slash
					Slash pine----------	82	10	pine.
GvC2, GvD2--------- Greenville	8A	Slight	Slight	Moderate	Loblolly pine--------	82	8	Loblolly pine,
					Longleaf pine--------	70	6	longleaf pine, slash
					Slash pine----------	82	10	pine.
Iu---------- Iuka	9W	Slight	Moderate	Moderate	Loblolly pine--------	100	9	Loblolly pine, yellow-
					Sweetgum----------	100	10	poplar, sweetgum.
					Water oak----------	100	7	
LaB, LaC, LaD, LaE, LkE---------- Lakeland	9S	Slight	Moderate	Moderate	Slash pine----------	75	9	Slash pine, loblolly
					Loblolly pine--------	75	7	pine, longleaf pine.
					Longleaf pine--------	60	4	
					Turkey oak----------	---	---	
					Blackjack oak--------	---	---	
					Post oak----------	---	---	
LuB, LuC---------- Lucy	8S	Slight	Moderate	Moderate	Loblolly pine--------	80	8	Slash pine, longleaf
					Longleaf pine--------	70	6	pine, loblolly pine.
					Slash pine----------	84	11	
NaB, NaC, NkC3----- Nankin	8A	Slight	Slight	Slight	Loblolly pine--------	80	8	Loblolly pine, slash
					Slash pine----------	80	10	pine.
					Longleaf pine--------	70	6	
NkD3, NkE3, NnE3, NnF3---------- Nankin	8R	Moderate	Moderate	Moderate	Loblolly pine--------	80	8	Loblolly pine, slash
					Slash pine----------	80	10	pine.
					Longleaf pine--------	70	6	
Oc---------- Ochlockonee	11A	Slight	Slight	Slight	Loblolly pine--------	100	11	Loblolly pine, yellow-
					Yellow-poplar--------	110	9	poplar.
					Slash pine----------	100	13	
					Sweetgum----------	90	7	
					Water oak----------	80	5	
OrB, OrC, OrD2----- Orangeburg	8A	Slight	Slight	Slight	Loblolly pine--------	80	8	Slash pine, loblolly
					Slash pine----------	86	11	pine.
					Longleaf pine--------	77	7	
ReB, ReC---------- Red Bay	9A	Slight	Slight	Slight	Loblolly pine--------	90	9	Loblolly pine, slash
					Slash pine----------	90	11	pine, longleaf pine.
					Longleaf pine--------	77	7	
TrB, TrC---------- Troup	8S	Slight	Moderate	Moderate	Loblolly pine--------	80	8	Loblolly pine,
					Longleaf pine--------	70	6	longleaf pine, slash
					Slash pine----------	84	11	pine.
TrD, TrE, TuE------ Troup	8R	Moderate	Moderate	Moderate	Loblolly pine--------	80	8	
					Longleaf pine--------	70	6	

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
VAC**:								
Vaucluse	7A	Slight	Slight	Moderate	Loblolly pine	76	7	Loblolly pine, slash pine, longleaf pine.
					Shortleaf pine	56	6	
					Slash pine	75	9	
					Longleaf pine	---	---	
Ailey	8S	Slight	Moderate	Moderate	Slash pine	70	8	Slash pine, longleaf pine.
					Longleaf pine	60	4	
VAE**:								
Vaucluse	7A	Moderate	Moderate	Moderate	Loblolly pine	76	7	Loblolly pine, slash pine, longleaf pine.
					Shortleaf pine	56	6	
					Slash pine	75	9	
					Longleaf pine	---	---	
Ailey	8S	Slight	Moderate	Moderate	Slash pine	70	8	Slash pine, longleaf pine.
					Longleaf pine	60	4	
WbA	9W	Slight	Moderate	Moderate	Loblolly pine	86	9	Loblolly pine, slash pine, sweetgum, southern red oak.
Wahee					Slash pine	86	11	
					Sweetgum	90	7	
					Blackgum	---	---	
					Water oak	---	---	
					Swamp chestnut oak	---	---	
					Willow oak	---	---	
					Southern red oak	---	---	

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--RECREATIONAL DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AaB Ailey	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
AaC Ailey	Moderate: too sandy.	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty.
Bh Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
BoC*: Bigbee	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, flooding.
Ochlockonee	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
Ch Chastain	Severe: flooding, wetness.	Severe: wetness, too acid.	Severe: wetness, flooding.	Severe: wetness.	Severe: too acid, wetness, flooding.
COC*: Cowarts	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: droughty, slope.
Ailey	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: slope, droughty.
COD*, COE*, CwE*: Cowarts	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Ailey	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
DoB Dothan	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
DoC Dothan	Slight	Slight	Severe: slope.	Slight	Moderate: droughty.
EmB Esto	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight	Slight.
EmC Esto	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight	Slight.
EmD Esto	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
EtA Eunola	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
FuB Fuquay	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
FuC Fuquay	Moderate: too sandy.	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty.
GrA Greenville	Slight	Slight	Slight	Slight	Slight.
GrB Greenville	Slight	Slight	Moderate: slope.	Slight	Slight.
GvC2 Greenville	Slight	Slight	Severe: slope.	Slight	Slight.
GvD2 Greenville	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
Iu Iuka	Severe: flooding, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, flooding.
LaB Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
LaC Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Moderate: droughty, slope, too sandy.
LaD, LaE, LkE Lakeland	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: slope.
LuB Lucy	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
LuC Lucy	Slight	Slight	Severe: slope.	Slight	Moderate: droughty.
NaB Nankin	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight	Slight.
NaC, NkC3 Nankin	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
NkD3, NkE3, NnE3 Nankin	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
NnF3 Nankin	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Oc Ochlockonee	Severe: flooding.	Slight	Moderate: flooding.	Slight	Slight.
OrB Orangeburg	Slight	Slight	Moderate: slope.	Slight	Slight.
OrC Orangeburg	Slight	Slight	Severe: slope.	Slight	Slight.
OrD2 Orangeburg	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
OuB*: Orangeburg	Slight	Slight	Moderate: slope.	Slight	Slight.
Urban land.					
ReB Red Bay	Slight	Slight	Moderate: slope.	Slight	Slight.
ReC Red Bay	Slight	Slight	Severe: slope.	Slight	Slight.
TrB Troup	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
TrC Troup	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty, slope.
TrD, TrE, TuE Troup	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, too sandy.	Severe: slope.
UoC*: Urban land.					
Orangeburg	Slight	Slight	Moderate: slope.	Slight	Slight.
UtC*: Urban land.					
Troup	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
VAC*: Vaucluse	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: droughty, slope.
Ailey	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: slope, droughty.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
VAE*:					
Vaucluse	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Ailey	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
WbA Wahee	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--WILDLIFE HABITAT

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AaB---- Ailey	Poor	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Poor	Very poor.
AaC---- Ailey	Poor	Poor	Fair	Poor	Poor	Poor	Very poor.	Fair	Poor	Very poor.
Bh---- Bibb	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
BoC*:										
Bigbee----	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
Ochlockonee----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Ch---- Chastain	Very poor.	Poor	Poor	Fair	Poor	Good	Good	Poor	Fair	Good.
COC*:										
Cowarts----	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Ailey----	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
COD*, COE*, CwE*:										
Cowarts----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Ailey----	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
DoB, DoC---- Dothan	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
EmB---- Esto	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EmC, EmD---- Esto	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
EtA---- Eunola	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
FuB---- Fuquay	Fair	Fair	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
FuC---- Fuquay	Poor	Fair	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
GrA, GrB---- Greenville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
GvC2, GvD2--------- Greenville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Iu----------------- Iuka	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
LaB, LaC, LaD, LaE, LkE--------------- Lakeland	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
LuB, LuC----------- Lucy	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
NaB---------------- Nankin	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NaC, NkC3---------- Nankin	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
NkD3, NkE3, NnE3--- Nankin	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	---
NnF3--------------- Nankin	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Oc----------------- Ochlockonee	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
OrB---------------- Orangeburg	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
OrC, OrD2---------- Orangeburg	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
OuB*: Orangeburg-------- Urban land.	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ReB---------------- Red Bay	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ReC---------------- Red Bay	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
TrB, TrC, TrD, TrE, TuE--------------- Troup	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
UoC*: Urban land. Orangeburg-------- UtC*: Urban land.	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
UtC*:										
Troup	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
VAC*:										
Vaucluse	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Ailey	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
VAE*:										
Vaucluse	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Ailey	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
WbA Wahee	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--BUILDING SITE DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AaB---------- Ailey	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty.
AaC---------- Ailey	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: droughty.
Bh---------- Bibb	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
BoC*:						
Bigbee----------	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
Ochlockonee------	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
Ch---------- Chastain	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: too acid, wetness, flooding.
COC*:						
Cowarts----------	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
Ailey----------	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope, droughty.
COD*, COE*, CwE*:						
Cowarts----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Ailey----------	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
DoB---------- Dothan	Moderate: wetness.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
DoC---------- Dothan	Moderate: wetness.	Slight---------	Moderate: wetness.	Moderate: slope.	Slight---------	Moderate: droughty.
EmB---------- Esto	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, low strength.	Slight.
EmC---------- Esto	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, low strength.	Slight.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
EmD Esto	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: shrink-swell, low strength, slope.	Moderate: slope.
EtA Eunola	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: wetness, flooding.
FuB Fuquay	Slight	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
FuC Fuquay	Slight	Slight	Moderate: wetness.	Moderate: slope.	Slight	Moderate: droughty.
GrA, GrB Greenville	Moderate: too clayey.	Slight	Slight	Slight	Slight	Slight.
GvC2 Greenville	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Slight	Slight.
GvD2 Greenville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
Iu Iuka	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.
LaB Lakeland	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty, too sandy.
LaC Lakeland	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope, too sandy.
LaD, LaE, LkE Lakeland	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
LuB Lucy	Moderate: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
LuC Lucy	Moderate: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
NaB Nankin	Moderate: too clayey.	Slight	Slight	Slight	Slight	Slight.
NaC, NkC3 Nankin	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
NkD3, NkE3, NnE3, NnF3 Nankin	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Oc Ochlockonee	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Slight.
OrB Orangeburg	Slight	Slight	Slight	Slight	Slight	Slight.
OrC Orangeburg	Slight	Slight	Slight	Moderate: slope.	Slight	Slight.
OrD2 Orangeburg	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
OuB*: Orangeburg	Slight	Slight	Slight	Slight	Slight	Slight.
Urban land.						
ReB Red Bay	Slight	Slight	Slight	Slight	Slight	Slight.
ReC Red Bay	Slight	Slight	Slight	Moderate: slope.	Slight	Slight.
TrB Troup	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
TrC Troup	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
TrD, TrE, TuE Troup	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
UoC*: Urban land.						
Orangeburg	Slight	Slight	Slight	Moderate: slope.	Slight	Slight.
UtC*: Urban land.						
Troup	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
VAC*: Vaucluse	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
Ailey	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope, droughty.
VAE*: Vaucluse	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
VAE*: Ailey	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
WbA--- Wahee	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--SANITARY FACILITIES

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AaB, AaC---------- Ailey	Severe: percs slowly.	Severe: seepage.	Slight----------	Slight----------	Good.
Bh---------- Bibb	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: small stones, wetness.
BoC*:					
Bigbee----------	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
Ochlockonee--------	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Fair: wetness.
Ch---------- Chastain	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
COC*:					
Cowarts----------	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
Ailey----------	Severe: percs slowly.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
COD*, COE*, CwE*:					
Cowarts----------	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Ailey----------	Severe: percs slowly, slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
DoB, DoC---------- Dothan	Moderate: wetness, percs slowly.	Moderate: seepage, slope.	Moderate: wetness.	Slight----------	Good.
EmB, EmC---------- Esto	Severe: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight----------	Fair: too clayey, hard to pack.
EmD---------- Esto	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
EtA Eunola	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness, thin layer.
FuB, FuC Fuquay	Moderate: percs slowly, poor filter.	Severe: seepage.	Moderate: too sandy.	Severe: seepage.	Poor: seepage.
GrA Greenville	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
GrB, GvC2 Greenville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
GvD2 Greenville	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
Iu Iuka	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
LaB Lakeland	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
LaC Lakeland	Moderate: slope.	Severe: seepage, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
LaD, LaE, LkE Lakeland	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope, too sandy.	Severe: seepage, slope.	Poor: seepage, too sandy, slope.
LuB, LuC Lucy	Slight	Severe: seepage.	Slight	Severe: seepage.	Fair: too clayey.
NaB Nankin	Severe: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
NaC, NkC3 Nankin	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
NkD3, NkE3, NnE3, NnF3 Nankin	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Oc Ochlockonee	Severe: wetness.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: wetness.
OrB, OrC Orangeburg	Slight	Moderate: seepage, slope.	Slight	Slight	Good.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
OrD2---------- Orangeburg	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
OuB*: Orangeburg----------	Slight----------	Moderate: seepage, slope.	Slight----------	Slight----------	Good.
Urban land.					
ReB, ReC---------- Red Bay	Slight----------	Moderate: seepage, slope.	Slight----------	Slight----------	Good.
TrB---------- Troup	Slight----------	Severe: seepage.	Moderate: too sandy.	Severe: seepage.	Poor: seepage.
TrC---------- Troup	Moderate: slope.	Severe: seepage, slope.	Moderate: slope, too sandy.	Severe: seepage.	Poor: seepage.
TrD, TrE, TuE------- Troup	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage, slope.	Poor: seepage, slope.
UoC*: Urban land.					
Orangeburg----------	Slight----------	Moderate: seepage, slope.	Slight----------	Slight----------	Good.
UtC*: Urban land.					
Troup----------	Slight----------	Severe: seepage.	Moderate: too sandy.	Severe: seepage.	Poor: seepage.
VAC*: Vaucluse----------	Severe: percs slowly.	Severe: seepage, slope.	Severe: seepage.	Moderate: slope.	Fair: too clayey, slope.
Ailey----------	Severe: percs slowly.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
VAE*: Vaucluse----------	Severe: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: slope.
Ailey----------	Severe: percs slowly, slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
WbA---------- Wahee	Severe: wetness, percs slowly.	Slight----------	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--CONSTRUCTION MATERIALS

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
AaB, AaC---------- Ailey	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Bh---------- Bibb	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
BoC*:				
Bigbee----------	Good----------	Probable----------	Improbable: too sandy.	Poor: too sandy.
Ochlockonee----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Good.
Ch---------- Chastain	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
COC*:				
Cowarts----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Ailey----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too sandy.
COD*, COE*, CwE*:				
Cowarts----------	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Ailey----------	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
DoB, DoC---------- Dothan	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
EmB, EmC, EmD--------- Esto	Fair: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
EtA---------- Eunola	Fair: wetness.	Probable----------	Improbable: too sandy.	Fair: too clayey, small stones.
FuB, FuC---------- Fuquay	Good----------	Improbable: thin layer.	Improbable: too sandy.	Fair: too sandy, small stones.
GrA, GrB, GvC2, GvD2-- Greenville	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Iu---------- Iuka	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
LaB, LaC---------- Lakeland	Good----------	Probable----------	Improbable: too sandy.	Poor: too sandy.
LaD, LaE, LkE--------- Lakeland	Fair: slope.	Probable----------	Improbable: too sandy.	Poor: too sandy, slope.
LuB, LuC---------- Lucy	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
NaB, NaC, NkC3-------- Nankin	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
NkD3, NkE3, NnE3------ Nankin	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
NnF3---------- Nankin	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
Oc---------- Ochlockonee	Good----------	Improbable: excess fines.	Improbable: excess fines.	Good.
OrB, OrC---------- Orangeburg	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
OrD2---------- Orangeburg	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
OuB*: Orangeburg----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Urban land.				
ReB, ReC---------- Red Bay	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
TrB---------- Troup	Good----------	Probable----------	Improbable: too sandy.	Fair: too sandy.
TrC---------- Troup	Good----------	Probable----------	Improbable: too sandy.	Fair: too sandy, slope.
TrD, TrE, TuE--------- Troup	Fair: slope.	Probable----------	Improbable: too sandy.	Poor: slope.
UoC*: Urban land.				
Orangeburg----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
UtC*: Urban land.				
Troup----------	Good----------	Probable----------	Improbable: too sandy.	Fair: too sandy.

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
VAC*:				
Vaucluse	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim.
Ailey	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too sandy.
VAE*:				
Vaucluse	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim.
Ailey	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
WbA Wahee	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--WATER MANAGEMENT

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
AaB, AaC---------- Ailey	Moderate: seepage, slope.	Slight---------	Deep to water	Droughty, percs slowly, slope.	Too sandy, percs slowly.	Droughty, rooting depth.
Bh---------- Bibb	Moderate: seepage.	Severe: piping, wetness.	Flooding-------	Wetness--------	Erodes easily, wetness.	Wetness.
BoC*: Bigbee---------- Ochlockonee------	Severe: seepage. Severe: seepage.	Severe: seepage, piping. Severe: piping.	Deep to water Deep to water	Droughty, fast intake. Flooding-------	Too sandy------ Favorable------	Droughty. Favorable.
Ch---------- Chastain	Severe: seepage.	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, percs slowly.
COC*, COD*, COE*, CwE*: Cowarts--------- Ailey----------	Severe: slope. Severe: slope.	Severe: piping. Slight---------	Deep to water Deep to water	Slope, droughty, fast intake. Droughty, percs slowly, slope.	Slope, soil blowing, percs slowly. Slope, too sandy, percs slowly.	Slope, droughty, rooting depth. Slope, droughty, rooting depth.
DoB, DoC---------- Dothan	Moderate: seepage, slope.	Moderate: piping.	Deep to water	Fast intake, slope, droughty.	Favorable------	Droughty.
EmB, EmC---------- Esto	Moderate: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Soil blowing, percs slowly.	Percs slowly.
EmD---------- Esto	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, soil blowing, percs slowly.	Slope, percs slowly.
EtA---------- Eunola	Severe: seepage.	Severe: piping, wetness.	Flooding-------	Wetness--------	Wetness, soil blowing.	Favorable.
FuB---------- Fuquay	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy------	Droughty.
FuC---------- Fuquay	Severe: seepage.	Severe: seepage, piping.	Deep to water	Slope, droughty, fast intake.	Too sandy------	Droughty.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
GrA---------- Greenville	Moderate: seepage.	Severe: piping.	Deep to water	Favorable------	Favorable------	Favorable.
GrB---------- Greenville	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope----------	Soil blowing---	Favorable.
GvC2---------- Greenville	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope----------	Favorable------	Favorable.
GvD2---------- Greenville	Severe: slope.	Severe: piping.	Deep to water	Slope----------	Slope----------	Slope.
Iu---------- Iuka	Moderate: seepage.	Severe: piping, wetness.	Flooding-------	Wetness, flooding.	Wetness--------	Wetness.
LaB---------- Lakeland	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake.	Too sandy------	Droughty.
LaC, LaD, LaE, LkE---------- Lakeland	Severe: seepage, slope.	Severe: seepage.	Deep to water	Slope, droughty, fast intake.	Slope, too sandy.	Slope, droughty.
LuB---------- Lucy	Severe: seepage.	Severe: piping.	Deep to water	Droughty, fast intake.	Too sandy------	Droughty.
LuC---------- Lucy	Severe: seepage.	Severe: piping.	Deep to water	Droughty, fast intake, slope.	Too sandy------	Droughty.
NaB---------- Nankin	Moderate: seepage, slope.	Moderate: piping.	Deep to water	Slope----------	Favorable------	Favorable.
NaC---------- Nankin	Severe: slope.	Moderate: piping.	Deep to water	Slope----------	Slope----------	Slope.
NkC3, NkD3, NkE3, NnE3, NnF3------- Nankin	Severe: slope.	Moderate: piping.	Deep to water	Slope----------	Slope----------	Slope.
Oc---------- Ochlockonee	Severe: seepage.	Severe: piping.	Deep to water	Flooding-------	Favorable------	Favorable.
OrB, OrC---------- Orangeburg	Moderate: seepage, slope.	Moderate: piping.	Deep to water	Fast intake, slope.	Favorable------	Favorable.
OrD2---------- Orangeburg	Severe: slope.	Moderate: piping.	Deep to water	Slope----------	Slope----------	Slope.
OuB*: Orangeburg-------	Moderate: seepage, slope.	Moderate: piping.	Deep to water	Fast intake, slope.	Favorable------	Favorable.
Urban land.						

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
ReB, ReC---------- Red Bay	Moderate: seepage, slope.	Slight---------	Deep to water	Fast intake, slope.	Favorable------	Favorable.
TrB---------- Troup	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Too sandy------	Droughty.
TrC, TrD, TrE, TuE---------- Troup	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Slope, too sandy.	Slope, droughty.
UoC*: Urban land.						
Orangeburg-------	Moderate: seepage, slope.	Moderate: piping.	Deep to water	Fast intake, slope.	Favorable------	Favorable.
UtC*: Urban land.						
Troup----------	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Too sandy------	Droughty.
VAC*, VAE*: Vaucluse---------	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, droughty, fast intake.	Slope----------	Slope, droughty, rooting depth.
Ailey----------	Severe: slope.	Slight---------	Deep to water	Droughty, percs slowly, slope.	Slope, too sandy, percs slowly.	Slope, droughty, rooting depth.
WbA---------- Wahee	Slight---------	Severe: hard to pack, wetness.	Percs slowly---	Wetness, soil blowing.	Wetness, percs slowly.	Wetness, percs slowly.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
AaB, AaC--------- Ailey	0-24	Loamy coarse sand	SM, SP-SM	A-2, A-3	85-100	75-100	50-80	5-20	---	NP
	24-38	Sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	90-100	75-100	60-90	30-40	20-40	3-16
	38-45	Sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	90-100	75-100	55-90	20-50	20-40	3-16
	45-80	Coarse sandy loam, sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	85-100	75-100	50-85	15-40	<40	NP-14
Bh--------------- Bibb	0-18	Sandy loam-------	SM, SC-SM, ML, CL-ML	A-2, A-4	95-100	90-100	60-90	30-60	<25	NP-7
	18-80	Sandy loam, loam, silt loam.	SM, SC-SM, ML, CL-ML	A-2, A-4	60-100	50-100	40-100	30-90	<30	NP-7
BoC*:										
Bigbee-----------	0-4	Fine sand--------	SM, SP-SM	A-2-4, A-3	100	95-100	50-75	5-20	---	NP
	4-80	Sand, fine sand	SP-SM, SM	A-2-4, A-3	85-100	85-100	50-75	5-20	---	NP
Ochlockonee------	0-5	Sandy loam-------	SM, ML, SC-SM, CL-ML	A-4, A-2	100	95-100	65-90	40-70	<26	NP-5
	5-40	Fine sandy loam, sandy loam, silt loam.	SM, ML, SC, CL	A-4	100	95-100	95-100	36-75	<32	NP-9
	40-80	Loamy sand, sandy loam, silt loam.	SM, ML, CL, SC	A-4, A-2	100	95-100	85-99	13-80	<32	NP-9
Ch--------------- Chastain	0-3	Loam-------------	ML, CL, CL-ML	A-4, A-6, A-7	100	100	90-100	70-95	23-45	3-18
	3-56	Silty clay loam, clay loam, clay.	CL, CH, ML, MH	A-6, A-7	100	100	95-100	85-98	35-75	12-40
	56-78	Sandy clay loam, clay loam.	SM, SC	A-6, A-7, A-2-6	95-100	90-100	60-95	25-50	20-54	5-25
COC*, COD*, COE*, CwE*:										
Cowarts---------	0-14	Loamy sand-------	SM	A-2	90-100	85-100	50-80	13-30	---	NP
	14-20	Fine sandy loam, sandy loam, sandy clay loam.	SC-SM, SC, SM	A-2, A-4, A-6	95-100	90-100	60-95	23-45	20-40	NP-15
	20-37	Sandy clay loam, sandy clay, clay loam.	SM, SC	A-6, A-7, A-2-6	95-100	90-100	60-95	25-50	20-54	5-25
	37-80	Sandy loam, sandy clay loam, clay loam.	SC-SM, SC, CL-ML, CL	A-2, A-4, A-6, A-7	85-100	80-100	60-95	25-58	25-53	5-20

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
COC*, COD*, COE*, CwE*:										
Ailey	0-24	Loamy coarse sand	SM, SP-SM	A-2, A-3	85-100	75-100	50-80	5-20	---	NP
	24-38	Sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	90-100	75-100	60-90	30-40	20-40	3-16
	38-45	Sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	90-100	75-100	55-90	20-50	20-40	3-16
	45-80	Coarse sandy loam, sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	85-100	75-100	50-85	15-40	<40	NP-14
DoB, DoC	0-10	Loamy sand	SM	A-2	95-100	92-100	60-80	13-30	---	NP
Dothan	10-50	Sandy clay loam, sandy loam, fine sandy loam.	SC-SM, SC, SM	A-2, A-4, A-6	95-100	92-100	60-90	23-49	<40	NP-16
	50-80	Sandy clay loam, sandy clay.	SC-SM, SC, CL-ML, CL	A-2, A-4, A-6, A-7	95-100	92-100	70-95	30-53	25-45	4-23
EmB, EmC, EmD	0-8	Sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2	95-100	85-100	70-96	25-55	<25	NP-6
Esto	8-17	Clay loam, sandy clay, sandy clay loam.	CL, SC	A-6, A-7	95-100	85-100	85-100	45-90	35-50	12-25
	17-78	Clay loam, clay, sandy clay.	CL, CH	A-7	95-100	85-100	85-100	51-98	40-80	18-52
EtA	0-10	Sandy loam	SM	A-2, A-4	100	98-100	60-85	30-50	---	NP
Eunola	10-24	Sandy clay loam, clay loam, fine sandy loam.	SM, SC, SC-SM, CL	A-4, A-2, A-6	100	90-100	75-95	30-60	<36	NP-15
	24-54	Sandy clay loam, sandy clay, clay loam.	SM, SC, ML, CL	A-4, A-6, A-7	100	98-100	80-95	36-60	22-50	3-26
	54-75	Sand, loamy sand, fine sand.	SM, SP-SM	A-2, A-3	100	98-100	50-75	5-30	---	NP
FuB, FuC	0-33	Loamy sand	SP-SM, SM	A-2, A-3	95-100	90-100	50-83	5-35	---	NP
Fuquay	33-45	Sandy loam, fine sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	85-100	85-100	70-90	23-45	<45	NP-13
	45-80	Sandy clay loam	SC, SC-SM, SM	A-2, A-4, A-6, A-7-6	95-100	90-100	58-90	28-49	25-45	4-13
GrA, GrB	0-14	Sandy loam	SM, SC, SC-SM, CL-ML	A-2, A-4	95-100	90-100	65-85	25-55	10-25	NP-10
Greenville	14-80	Clay loam, sandy clay, clay.	CL, SC, ML	A-6, A-7, A-4	98-100	95-100	80-99	40-80	28-50	7-25
GvC2, GvD2	0-6	Sandy clay loam	CL, SC, CL-ML, SC-SM	A-4, A-6	95-100	95-100	75-95	45-75	20-35	6-15
Greenville	6-80	Clay loam, sandy clay, clay.	CL, SC, ML	A-6, A-7, A-4	98-100	95-100	80-99	40-80	28-50	7-25

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
Iu Iuka	0-5	Sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2	95-100	90-100	70-100	30-60	<20	NP-7
	5-36	Fine sandy loam, loam, sandy loam.	SM, SC-SM, ML, CL-ML	A-4	95-100	85-100	65-100	36-75	<30	NP-7
	36-80	Sandy loam, fine sandy loam, loam.	SM, ML	A-2, A-4	95-100	90-100	70-100	25-60	<30	NP-7
LaB, LaC, LaD, LaE, LkE Lakeland	0-22	Sand	SP-SM	A-3, A-2-4	90-100	90-100	60-100	5-12	---	NP
	22-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	90-100	90-100	50-100	1-12	---	NP
LuB, LuC Lucy	0-26	Loamy sand	SM, SP-SM	A-2, A-4	98-100	95-100	50-90	10-40	---	NP
	26-36	Sandy loam, fine sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	97-100	95-100	55-95	15-50	10-30	NP-15
	36-80	Sandy clay loam, clay loam, sandy clay.	SC, SC-SM, SM	A-2, A-6, A-4	100	95-100	60-95	20-50	20-40	3-20
NaB, NaC Nankin	0-5	Sandy loam	SM, SC-SM	A-2, A-4	85-100	85-100	70-90	25-45	<25	NP-4
	5-12	Sandy clay loam, sandy loam.	SC, SM, SC-SM	A-2, A-4, A-6	97-100	95-100	75-90	25-45	20-35	4-15
	12-44	Sandy clay, clay, sandy clay loam.	SC, CL, ML, CL-ML	A-4, A-6, A-7	98-100	95-100	75-95	40-70	25-45	7-20
	44-80	Sandy clay loam, sandy loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	98-100	95-100	70-85	25-55	20-40	4-16
NkC3, NkD3, NkE3, NnE3, NnF3 Nankin	0-3	Sandy clay loam	SM, SC-SM, ML, CL-ML	A-4	90-100	90-100	70-95	36-55	<25	NP-7
	3-45	Sandy clay, clay, sandy clay loam.	SC, CL, ML, CL-ML	A-4, A-6, A-7	98-100	95-100	75-95	40-70	25-45	7-20
	45-80	Sandy clay loam, sandy loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	98-100	95-100	70-85	25-55	20-40	4-16
Oc Ochlockonee	0-5	Sandy loam	SM, ML, SC-SM, CL-ML	A-4, A-2	100	95-100	65-90	40-70	<26	NP-5
	5-40	Fine sandy loam, sandy loam, silt loam.	SM, ML, SC, CL	A-4	100	95-100	95-100	36-75	<32	NP-9
	40-80	Loamy sand, sandy loam, silt loam.	SM, ML, CL, SC	A-4, A-2	100	95-100	85-99	13-80	<32	NP-9
OrB, OrC Orangeburg	0-8	Loamy sand	SM	A-2	98-100	95-100	60-87	14-28	---	NP
	8-58	Sandy clay loam, sandy loam.	SC, CL, SM, SC-SM	A-6, A-4	98-100	95-100	71-96	38-58	22-40	3-19
	58-80	Sandy clay loam, sandy clay, sandy loam.	SC, CL	A-6, A-4, A-7	98-100	95-100	70-97	40-65	24-46	8-21
OrD2 Orangeburg	0-3	Sandy loam	SM	A-2	98-100	95-100	75-95	20-35	---	NP
	3-12	Sandy clay loam, sandy loam.	SC, CL, SM, SC-SM	A-6, A-4	98-100	95-100	71-96	38-58	22-40	3-19
	12-80	Sandy clay loam, sandy clay, sandy loam.	SC, CL	A-6, A-4, A-7	98-100	95-100	70-97	40-65	24-46	8-21

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
OuB*:										
Orangeburg	0-8	Loamy sand	SM	A-2	98-100	95-100	60-87	14-28	---	NP
	8-58	Sandy clay loam, sandy loam.	SC, CL, SM, SC-SM	A-6, A-4	98-100	95-100	71-96	38-58	22-40	3-19
	58-80	Sandy clay loam, sandy clay, sandy loam.	SC, CL	A-6, A-4, A-7	98-100	95-100	70-97	40-65	24-46	8-21
Urban land.										
ReB, ReC	0-8	Loamy sand	SM	A-2	100	90-100	51-75	15-30	---	NP
Red Bay	8-18	Sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4	100	95-100	60-85	15-50	<35	NP-10
	18-56	Sandy clay loam	SC-SM, SC	A-2, A-4, A-6	100	95-100	70-90	24-50	18-40	4-16
	56-80	Sandy clay loam, sandy clay.	SC, CL	A-6, A-4, A-7	100	98-100	70-97	40-65	24-46	8-21
TrB, TrC, TrD, TrE, TuE										
Troup	0-68	Loamy sand	SM, SP-SM	A-2, A-4	95-100	90-100	50-90	10-40	---	NP
	68-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SC-SM, CL-ML, CL	A-4, A-2, A-6	95-100	90-100	60-90	24-55	19-40	4-20
UoC*:										
Urban land.										
Orangeburg	0-8	Loamy sand	SM	A-2	98-100	95-100	60-87	14-28	---	NP
	8-58	Sandy clay loam, sandy loam.	SC, CL, SM, SC-SM	A-6, A-4	98-100	95-100	71-96	38-58	22-40	3-19
	58-80	Sandy clay loam, sandy clay, sandy loam.	SC, CL	A-6, A-4, A-7	98-100	95-100	70-97	40-65	24-46	8-21
UtC*:										
Urban land.										
Troup	0-68	Loamy sand	SM, SP-SM	A-2, A-4	95-100	90-100	50-90	10-40	---	NP
	68-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SC-SM, CL-ML, CL	A-4, A-2, A-6	95-100	90-100	60-90	24-55	19-40	4-20
VAC*, VAE*:										
Vaucluse	0-10	Loamy sand	SM, SP-SM	A-2, A-3	90-100	90-100	50-75	8-30	---	NP
	10-28	Sandy clay loam, sandy loam.	SC, SC-SM	A-2, A-4, A-6	90-100	90-100	51-75	25-50	20-40	5-18
	28-60	Sandy clay loam, sandy loam, sandy clay.	SC, SC-SM, SM	A-2, A-4, A-6	95-100	92-100	51-80	20-50	<40	NP-20
	60-80	Sandy loam, sandy clay loam, loamy sand.	SM, SC, SC-SM	A-2, A-4, A-6	95-100	95-100	51-90	15-50	<30	NP-12

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
VAC*, VAE*:										
Ailey	0-24	Loamy coarse sand	SM, SP-SM	A-2, A-3	85-100	75-100	50-80	5-20	---	NP
	24-38	Sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	90-100	75-100	60-90	30-40	20-40	3-16
	38-45	Sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	90-100	75-100	55-90	20-50	20-40	3-16
	45-80	Coarse sandy loam, sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4, A-6	85-100	75-100	50-85	15-40	<40	NP-14
WbA	0-3	Fine sandy loam	SM, SC-SM	A-2, A-4	100	95-100	50-98	30-50	<28	NP-7
Wahee	3-80	Clay, clay loam, silty clay.	CL, CH	A-6, A-7	100	100	85-100	51-92	38-81	16-54

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
AaB, AaC---	0-24	5-10	1.35-1.45	6.0-20	0.03-0.05	4.5-5.5	Low---	0.15	4	<1
Ailey	24-38	15-35	1.55-1.70	0.6-2.0	0.09-0.12	4.5-5.5	Low---	0.24		
	38-45	18-35	1.70-1.80	0.06-0.2	0.06-0.10	4.5-5.5	Low---	0.24		
	45-80	15-30	1.80-1.95	0.06-0.2	0.04-0.08	4.5-5.5	Low---	0.15		
Bh---	0-18	2-18	1.50-1.70	0.6-2.0	0.12-0.18	4.5-5.5	Low---	0.20	5	1-3
Bibb	18-80	2-18	1.45-1.75	0.6-2.0	0.10-0.20	4.5-5.5	Low---	0.37		
BoC*:										
Bigbee---	0-4	1-10	1.40-1.50	6.0-20	0.05-0.10	5.1-6.0	Low---	0.10	5	.5-2
	4-80	1-10	1.40-1.50	6.0-20	0.05-0.08	5.1-6.0	Low---	0.17		
Ochlockonee---	0-5	3-18	1.40-1.60	2.0-6.0	0.07-0.14	4.5-6.5	Low---	0.20	5	.5-2
	5-40	8-18	1.40-1.60	0.6-2.0	0.10-0.20	4.5-5.5	Low---	0.20		
	40-80	3-18	1.40-1.70	2.0-6.0	0.06-0.12	4.5-5.5	Low---	0.17		
Ch---	0-3	15-35	1.20-1.40	0.2-0.6	0.12-0.18	3.5-6.0	Moderate---	0.32	5	1-6
Chastain	3-56	35-60	1.30-1.50	0.06-0.2	0.12-0.16	3.5-6.0	Moderate---	0.37		
	56-78	18-40	1.50-1.70	0.2-0.6	0.08-0.12	3.5-6.0	Moderate---	0.10		
COC*, COD*, COE*, CwE*:										
Cowarts---	0-14	3-10	1.30-1.70	2.0-6.0	0.06-0.10	4.5-5.5	Low---	0.15	4	.5-1
	14-20	10-30	1.30-1.50	0.6-2.0	0.10-0.16	4.5-5.5	Low---	0.28		
	20-37	25-40	1.30-1.50	0.2-2.0	0.10-0.16	4.5-5.5	Low---	0.28		
	37-80	18-35	1.45-1.75	0.06-0.6	0.10-0.14	4.5-5.5	Low---	0.24		
Ailey---	0-24	5-10	1.35-1.45	6.0-20	0.03-0.05	4.5-5.5	Low---	0.15	4	<1
	24-38	15-35	1.55-1.70	0.6-2.0	0.09-0.12	4.5-5.5	Low---	0.24		
	38-45	18-35	1.70-1.80	0.06-0.2	0.06-0.10	4.5-5.5	Low---	0.24		
	45-80	15-30	1.80-1.95	0.06-0.2	0.04-0.08	4.5-5.5	Low---	0.15		
DoB, DoC---	0-10	5-15	1.30-1.60	2.0-6.0	0.06-0.10	5.1-6.0	Low---	0.15	5	.5-1
Dothan	10-50	18-35	1.40-1.60	0.6-2.0	0.12-0.16	5.1-6.0	Low---	0.28		
	50-80	18-40	1.45-1.70	0.2-0.6	0.08-0.12	5.1-6.0	Low---	0.28		
EmB, EmC, EmD---	0-8	8-20	1.45-1.65	2.0-6.0	0.11-0.15	4.5-5.5	Low---	0.28	4	.5-1
Esto	8-17	26-45	1.45-1.60	0.6-2.0	0.12-0.17	4.5-5.5	Moderate---	0.32		
	17-78	35-60	1.30-1.55	0.06-0.2	0.12-0.18	4.5-5.5	Moderate---	0.32		
EtA---	0-10	10-20	1.35-1.65	2.0-6.0	0.10-0.14	4.5-5.5	Low---	0.20	5	.5-2
Eunola	10-24	18-35	1.35-1.65	0.6-2.0	0.12-0.17	4.5-5.5	Low---	0.28		
	24-54	18-45	1.30-1.60	0.6-2.0	0.12-0.16	4.5-5.5	Low---	0.32		
	54-75	2-11	1.45-1.75	6.0-20	0.02-0.06	4.5-5.5	Low---	0.20		
FuB, FuC---	0-33	2-10	1.60-1.70	>6.0	0.04-0.09	4.5-5.5	Low---	0.15	5	.5-1
Fuquay	33-45	10-35	1.40-1.60	0.6-2.0	0.12-0.15	4.5-5.5	Low---	0.20		
	45-80	20-35	1.40-1.60	0.06-0.2	0.10-0.13	4.5-5.5	Low---	0.20		
GrA, GrB---	0-14	5-20	1.30-1.65	0.6-6.0	0.07-0.14	4.5-5.5	Low---	0.24	5	.5-1
Greenville	14-80	35-55	1.35-1.55	0.6-2.0	0.14-0.18	4.5-5.5	Low---	0.17		
GvC2, GvD2---	0-6	15-30	1.30-1.65	0.6-2.0	0.12-0.18	4.5-5.5	Low---	0.24	5	.5-1
Greenville	6-80	35-55	1.35-1.55	0.6-2.0	0.14-0.18	4.5-5.5	Low---	0.17		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
Iu	0-5	6-15	1.40-1.60	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.24	5	.5-2
Iuka	5-36	8-18	1.40-1.60	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.28		
	36-80	5-15	1.40-1.60	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.20		
LaB, LaC, LaD, LaE, LkE	0-22	2-8	1.35-1.65	6.0-20	0.05-0.09	4.5-5.5	Low	0.10	5	.5-1
Lakeland	22-80	1-6	1.50-1.60	6.0-20	0.02-0.08	4.5-5.5	Low	0.10		
LuB, LuC	0-26	1-12	1.30-1.70	6.0-20	0.06-0.09	4.5-5.5	Low	0.10	5	.5-1
Lucy	26-36	10-30	1.40-1.60	2.0-6.0	0.10-0.12	4.5-5.5	Low	0.24		
	36-80	20-45	1.40-1.60	0.6-2.0	0.10-0.14	4.5-5.5	Low	0.28		
NaB, NaC	0-5	7-20	1.45-1.55	2.0-6.0	0.08-0.12	4.5-5.5	Low	0.28	3	.5-1
Nankin	5-12	15-35	1.55-1.65	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.24		
	12-44	35-50	1.30-1.70	0.2-0.6	0.11-0.16	4.5-5.5	Low	0.24		
	44-80	15-35	1.60-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.24		
NkC3, NkD3, NkE3, NnE3, NnF3	0-3	20-30	1.45-1.60	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.32	3	.5-1
Nankin	3-45	35-50	1.30-1.70	0.2-0.6	0.11-0.16	4.5-5.5	Low	0.24		
	45-80	15-35	1.60-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.24		
Oc	0-5	3-18	1.40-1.60	2.0-6.0	0.07-0.14	4.5-5.5	Low	0.20	5	.5-2
Ochlockonee	5-40	8-18	1.40-1.60	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.20		
	40-80	3-18	1.40-1.70	2.0-6.0	0.06-0.12	4.5-5.5	Low	0.17		
OrB, OrC	0-8	4-10	1.35-1.55	2.0-6.0	0.06-0.09	4.5-5.5	Low	0.10	5	.5-1
Orangeburg	8-58	18-35	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	Low	0.24		
	58-80	20-45	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	Low	0.24		
OrD2	0-3	7-15	1.30-1.50	2.0-6.0	0.07-0.10	4.5-5.5	Low	0.20	5	.5-1
Orangeburg	3-12	18-35	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	Low	0.24		
	12-80	20-45	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	Low	0.24		
OuB*:										
Orangeburg	0-8	4-10	1.35-1.55	2.0-6.0	0.06-0.09	4.5-5.5	Low	0.10	5	.5-1
	8-58	18-35	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	Low	0.24		
	58-80	20-45	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	Low	0.24		
Urban land.										
ReB, ReC	0-8	4-12	1.45-1.60	6.0-20	0.06-0.11	4.5-5.5	Low	0.15	5	.5-1
Red Bay	8-18	10-25	1.30-1.60	0.6-6.0	0.10-0.14	4.5-5.5	Low	0.15		
	18-56	18-35	1.30-1.50	0.6-2.0	0.12-0.17	4.5-5.5	Low	0.17		
	56-80	20-45	1.40-1.60	0.6-2.0	0.11-0.14	4.5-5.5	Low	0.24		
TrB, TrC, TrD, TrE, TuE	0-68	2-12	1.30-1.70	6.0-20	0.08-0.12	4.5-5.5	Low	0.10	5	<1
Troup	68-80	15-35	1.40-1.60	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.20		
UoC*:										
Urban land.										
Orangeburg	0-8	4-10	1.35-1.55	2.0-6.0	0.06-0.09	4.5-5.5	Low	0.10	5	.5-1
	8-58	18-35	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	Low	0.24		
	58-80	20-45	1.60-1.75	0.6-2.0	0.11-0.14	4.5-5.5	Low	0.24		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
UtC*:										
Urban land.										
Troup	0-68	2-12	1.30-1.70	6.0-20	0.08-0.12	4.5-5.5	Low	0.10	5	<1
	68-80	15-35	1.40-1.60	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.20		
VAC*, VAE*:										
Vaucluse	0-10	2-10	1.30-1.60	6.0-20	0.04-0.08	4.5-5.5	Low	0.15	3	<1
	10-28	18-35	1.35-1.75	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.24		
	28-60	18-45	1.75-1.95	0.06-0.6	0.04-0.08	4.5-5.5	Low	0.24		
	60-80	5-30	1.55-1.90	2.0-6.0	0.04-0.08	4.5-5.5	Low	0.17		
Ailey	0-24	5-10	1.35-1.45	6.0-20	0.03-0.05	4.5-6.5	Low	0.15	4	<1
	24-38	15-35	1.55-1.70	0.6-2.0	0.09-0.12	4.5-5.5	Low	0.24		
	38-45	18-35	1.70-1.80	0.06-0.2	0.06-0.10	4.5-5.5	Low	0.24		
	45-80	15-30	1.80-1.95	0.06-0.2	0.04-0.08	4.5-5.5	Low	0.15		
WbA	0-3	5-20	1.30-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.24	5	.5-2
Wahee	3-80	35-70	1.40-1.60	0.06-0.2	0.12-0.20	4.5-5.5	Moderate	0.28		

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--SOIL AND WATER FEATURES

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
AaB, AaC--Ailey	B	None	---	---	>6.0	---	---	Moderate	Moderate.
Bh--Bibb	D	Frequent	Brief to long.	Dec-May	0.5-1.0	Apparent	Dec-Apr	High	Moderate.
BoC*:									
Bigbee	A	Occasional	Brief	Jan-Mar	3.5-6.0	Apparent	Jan-Mar	Low	Moderate.
Ochlockonee	B	Occasional	Very brief	Dec-Apr	3.0-5.0	Apparent	Dec-Apr	Low	High.
Ch--Chastain	D	Frequent	Very long	Nov-Jun	0-1.0	Apparent	Nov-May	High	High.
COC*, COD*, COE*, CwE*:									
Cowarts	C	None	---	---	>6.0	---	---	Moderate	Moderate.
Ailey	B	None	---	---	>6.0	---	---	Moderate	Moderate.
DoB, DoC--Dothan	B	None	---	---	3.0-5.0	Perched	Jan-Apr	Moderate	Moderate.
EmB, EmC, EmD--Esto	B	None	---	---	>6.0	---	---	High	High.
EtA--Eunola	C	Occasional	Very brief	Dec-Apr	1.5-2.5	Apparent	Nov-Mar	Low	High.
FuB, FuC--Fuquay	B	None	---	---	4.0-6.0	Perched	Jan-Mar	Low	High.
GrA, GrB, GvC2, GvD2--Greenville	B	None	---	---	>6.0	---	---	Moderate	High.
Iu--Iuka	C	Occasional	Very brief or brief.	Dec-Apr	1.0-3.0	Apparent	Dec-Apr	Moderate	High.
LaB, LaC, LaD, LaE, LkE--Lakeland	A	None	---	---	>6.0	---	---	Low	Moderate.
LuB, LuC--Lucy	A	None	---	---	>6.0	---	---	Low	High.
NaB, NaC, NkC3, NkD3, NkE3, NnE3, NnF3--Nankin	C	None	---	---	>6.0	---	---	High	High.
Oc--Ochlockonee	B	Rare	---	---	3.0-5.0	Apparent	Dec-Apr	Low	High.

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
OrB, OrC, OrD2---- Orangeburg	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
OuB*: Orangeburg-------	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
Urban land.									
ReB, ReC---------- Red Bay	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
TrB, TrC, TrD, TrE, TuE--------- Troup	A	None--------	---	---	>6.0	---	---	Low------	Moderate.
UoC*: Urban land.									
Orangeburg-------	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
UtC*: Urban land.									
Troup------------	A	None--------	---	---	>6.0	---	---	Low------	Moderate.
VAC*, VAE*: Vaucluse---------	C	None--------	---	---	>6.0	---	---	Low------	High.
Ailey------------	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
WbA---------- Wahee	D	Rare--------	---	---	0.5-1.5	Apparent	Dec-Mar	High-----	High.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 18.--CLASSIFICATION OF THE SOILS

(An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series)

Soil name	Family or higher taxonomic class
Ailey	Loamy, siliceous, thermic Arenic Kanhapludults
Bibb	Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents
Bigbee	Thermic, coated Typic Quartzipsamments
Chastain	Fine, mixed, acid, thermic Typic Fluvaquents
Cowarts	Fine-loamy, siliceous, thermic Typic Kanhapludults
Dothan	Fine-loamy, siliceous, thermic Plinthic Kandiudults
Esto	Clayey, kaolinitic, thermic Typic Kandiudults
Eunola	Fine-loamy, siliceous, thermic Aquic Hapludults
Fuquay	Loamy, siliceous, thermic Arenic Plinthic Kandiudults
Greenville	Clayey, kaolinitic, thermic Rhodic Kandiudults
Iuka	Coarse-loamy, siliceous, acid, thermic Aquic Udifluvents
Lakeland	Thermic, coated Typic Quartzipsamments
Lucy	Loamy, siliceous, thermic Arenic Kandiudults
Nankin	Clayey, kaolinitic, thermic Typic Kanhapludults
Ochlockonee	Coarse-loamy, siliceous, acid, thermic Typic Udifluvents
Orangeburg	Fine-loamy, siliceous, thermic Typic Kandiudults
Red Bay	Fine-loamy, siliceous, thermic Rhodic Kandiudults
Troup	Loamy, siliceous, thermic Grossarenic Kandiudults
Vaucluse	Fine-loamy, siliceous, thermic Typic Kanhapludults
*Wahee	Clayey, mixed, thermic Aeric Endoaquults

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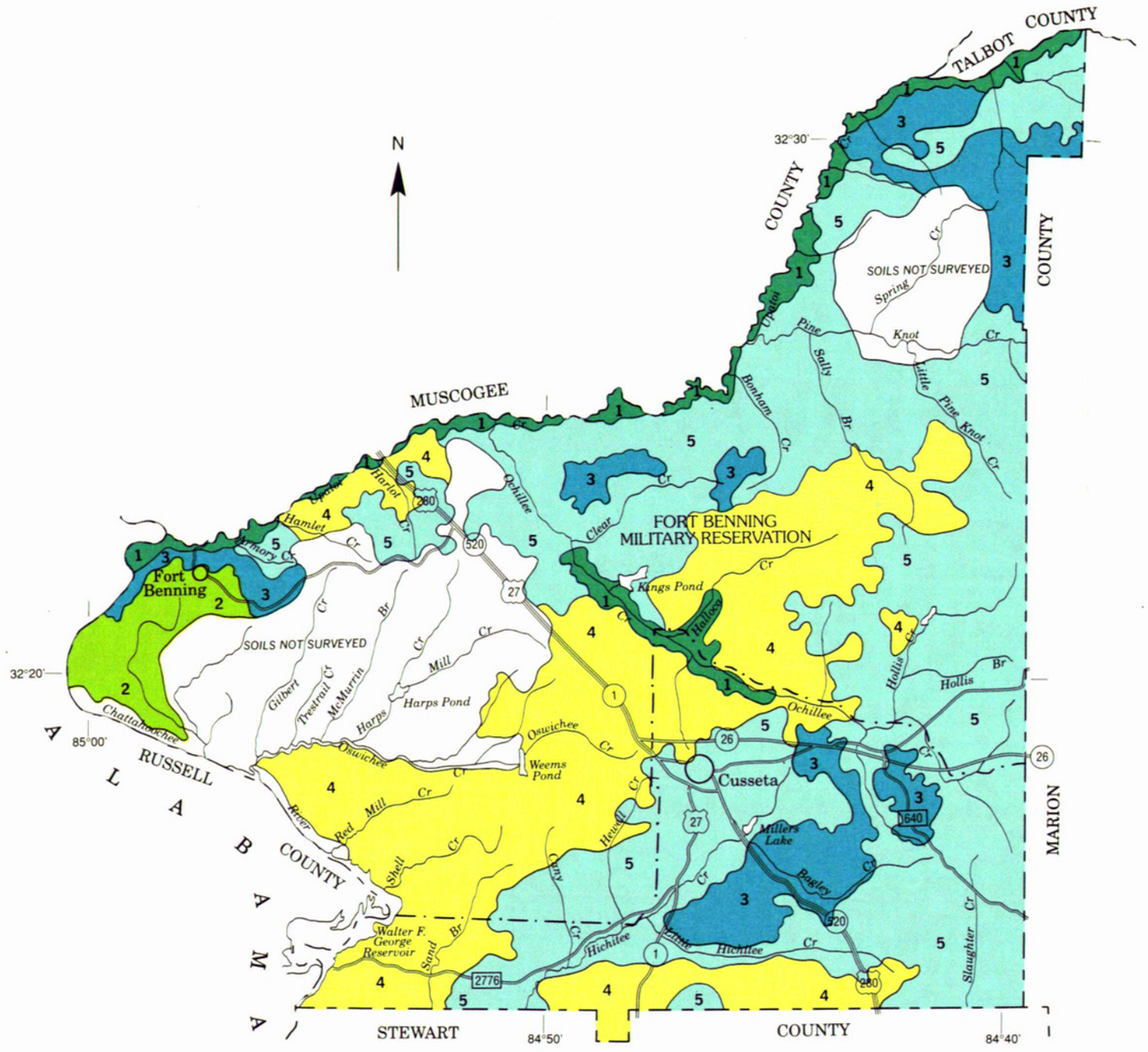


SOIL LEGEND*

1	BIBB-OCHLOCKONEE-BIGBEE
2	URBAN LAND-UDORTHENTS-ORANGEBURG
3	TROUP-LAKELAND
4	COWARTS-NANKIN
5	TROUP-COWARTS-NANKIN

* The units on this legend are described in the text under the heading "General Soil Map Units."

Areas in white are portions of Fort Benning Military Reservation that were not surveyed.

Compiled 1996

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
UNIVERSITY OF GEORGIA
COLLEGE OF AGRICULTURE AND ENVIRONMENTAL SCIENCES,
AGRICULTURAL EXPERIMENT STATIONS

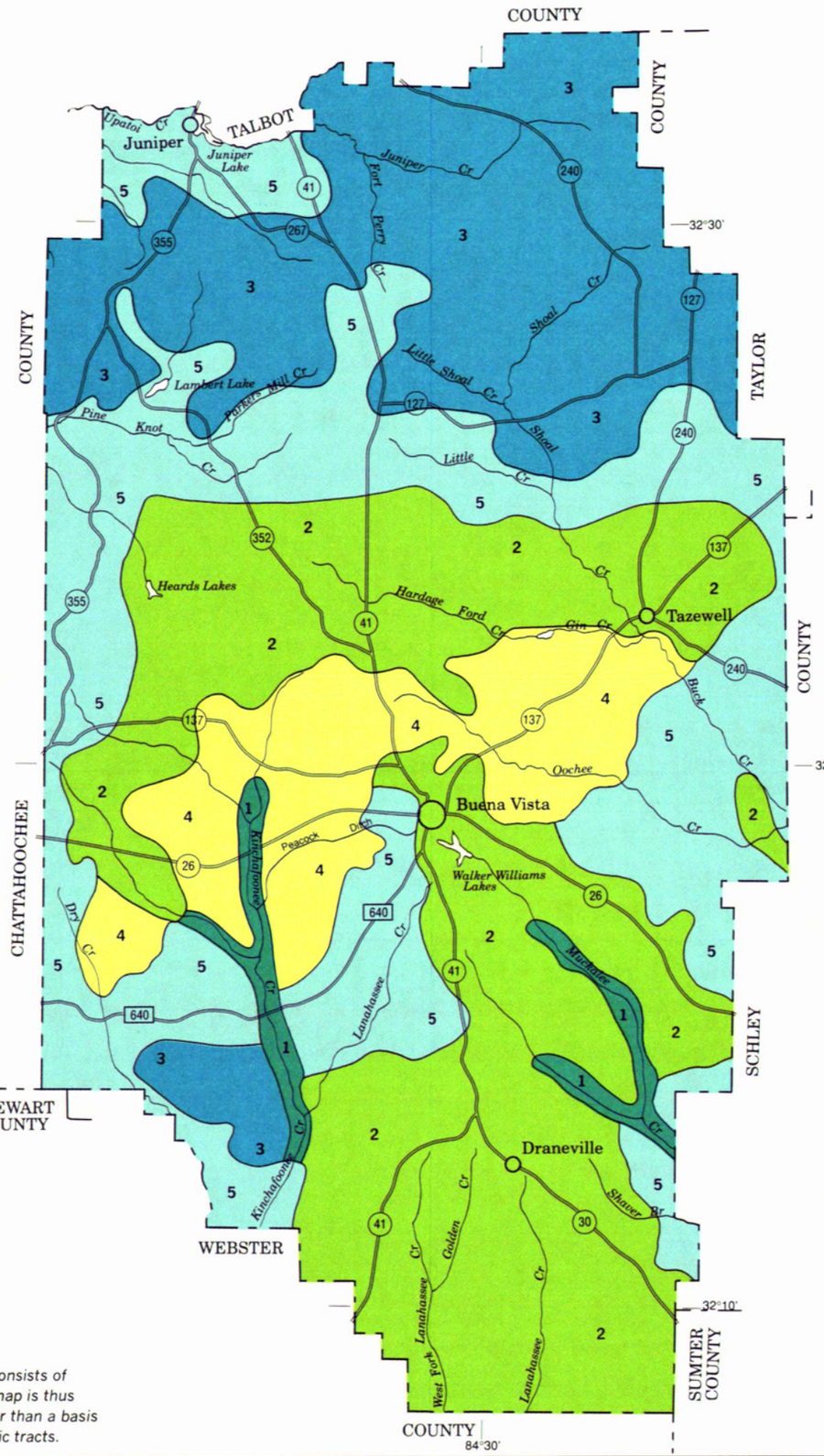
GENERAL SOIL MAP

CHATTAHOOCHEE COUNTY, GEORGIA

Scale 1:190,080

1 0 1 2 3 Mi

1 0 3 6 Km



SOIL LEGEND*

1	BIBB-IUKA
2	ORANGEBURG-TROUP-LUCY
3	TROUP-LAKELAND
4	NANKIN-COWARTS-AILEY
5	TROUP-COWARTS-AILEY

* The units on this legend are described in the text under the heading "General Soil Map Units."

Compiled 1996

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
UNIVERSITY OF GEORGIA
COLLEGE OF AGRICULTURE AND ENVIRONMENTAL SCIENCES,
AGRICULTURAL EXPERIMENT STATIONS

GENERAL SOIL MAP

MARION COUNTY, GEORGIA

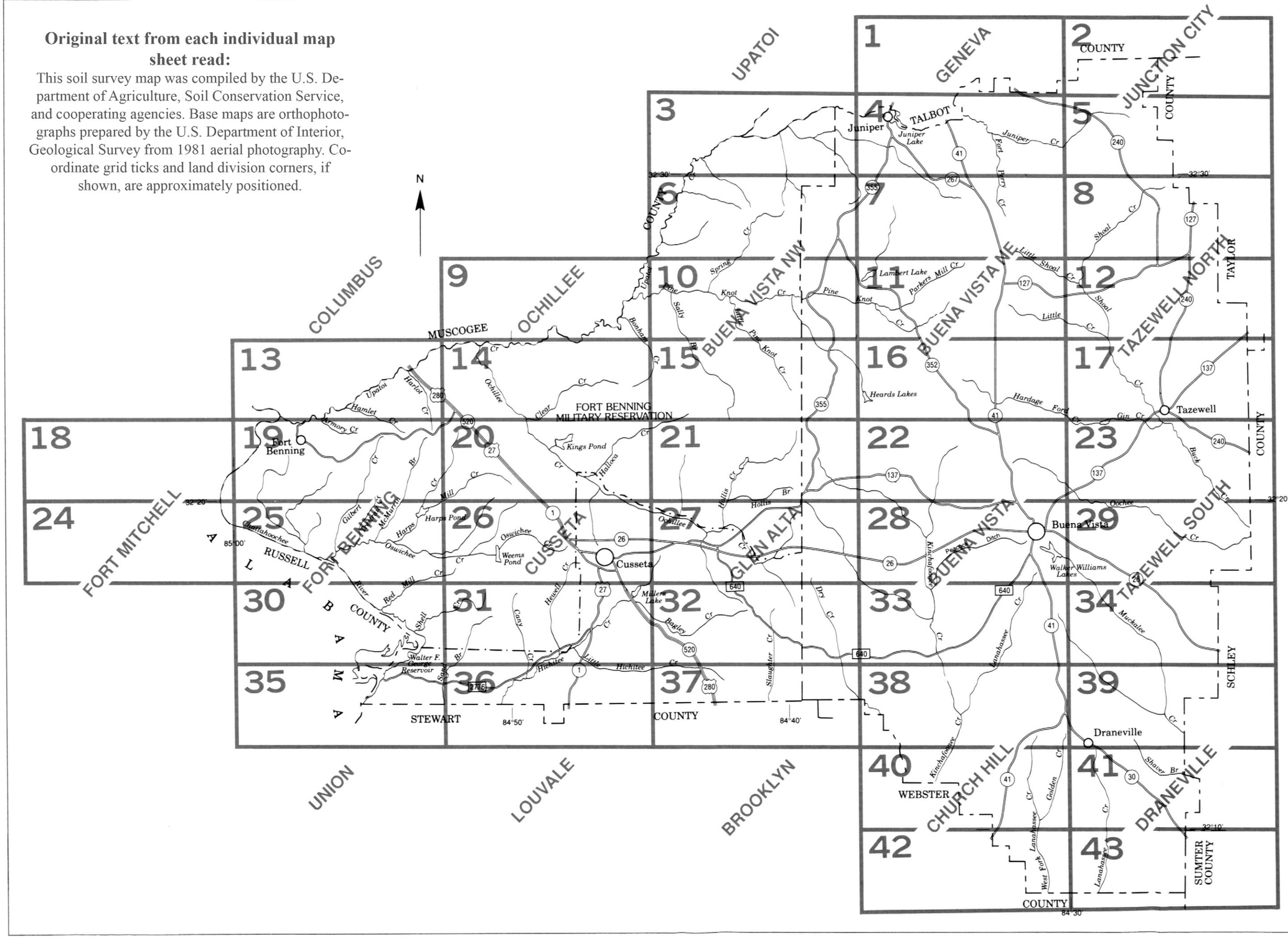
Scale 1:190,080

1 0 1 2 3 Mi

1 0 3 6 Km

Original text from each individual map sheet read:

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey from 1981 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



INDEX TO MAP SHEETS

CHATTAHOOCHEE AND MARION COUNTIES, GEORGIA

Scale 1:190,080

1 0 1 2 3 Mi

1 0 3 6 Km

SOIL LEGEND

Soil map symbols and map unit names are alphabetical. Map symbols are a combination of letters and numbers. The first two letters are listed alphabetically and represent the kind of soil. The first letter is always a capital. The second letter is a capital if the map unit is a third order unit, otherwise it is a small letter. A third letter, if used, is a capital letter and indicates the class of slope. Symbols without a slope letter are for nearly level soils, except for map units Ps and Ua, which are 0 to 15 percent slopes, and map unit Ub, which is 0 to 10 percent slopes. A number of 2 following the slope letter indicates that the soil is moderately eroded and 3 indicates severely eroded.

SYMBOL	NAME
AaB	Ailey loamy coarse sand, 2 to 5 percent slopes
AaC	Ailey loamy coarse sand, 5 to 8 percent slopes
Bh	Bibb sandy loam, frequently flooded
BoC	Bigbee-Ochlockonee complex, 0 to 5 percent slopes, occasionally flooded
Ch	Chastain loam, frequently flooded
COC	Cowarts and Ailey soils, 5 to 12 percent slopes
COD	Cowarts and Ailey soils, 12 to 18 percent slopes
COE	Cowarts and Ailey soils, 12 to 25 percent slopes
CwE	Cowarts and Ailey soils, 18 to 25 percent slopes
DoB	Dothan loamy sand, 2 to 5 percent slopes
DoC	Dothan loamy sand, 5 to 8 percent slopes
EmB	Esto sandy loam, 2 to 5 percent slopes
EmC	Esto sandy loam, 5 to 8 percent slopes
EmD	Esto sandy loam, 8 to 15 percent slopes
EtA	Eunola sandy loam, 0 to 3 percent slopes, occasionally flooded
FuB	Fuquay loamy sand, 0 to 5 percent slopes
FuC	Fuquay loamy sand, 5 to 8 percent slopes
GrA	Greenville sandy loam, 0 to 2 percent slopes
GrB	Greenville sandy loam, 2 to 5 percent slopes
GvC2	Greenville sandy clay loam, 5 to 8 percent slopes, eroded
GvD2	Greenville sandy clay loam, 8 to 12 percent slopes, eroded
Iu	Iuka sandy loam, occasionally flooded
LaB	Lakeland sand, 0 to 5 percent slopes
LaC	Lakeland sand, 5 to 12 percent slopes
LaD	Lakeland sand, 12 to 18 percent slopes
LaE	Lakeland sand, 12 to 25 percent slopes
LkE	Lakeland sand, 18 to 25 percent slopes
LuB	Lucy loamy sand, 0 to 5 percent slopes
LuC	Lucy loamy sand, 5 to 8 percent slopes
NaB	Nankin sandy loam, 2 to 5 percent slopes
NaC	Nankin sandy loam, 5 to 12 percent slopes
NkC3	Nankin sandy clay loam, 5 to 12 percent slopes, severely eroded
NkD3	Nankin sandy clay loam, 12 to 18 percent slopes, severely eroded
NkE3	Nankin sandy clay loam, 12 to 25 percent slopes, severely eroded
NnE3	Nankin sandy clay loam, 18 to 25 percent slopes, severely eroded
NnF3	Nankin sandy clay loam, 25 to 35 percent slopes, severely eroded
Oc	Ochlockonee sandy loam, rarely flooded
OrB	Orangeburg loamy sand, 2 to 5 percent slopes
OrC	Orangeburg loamy sand, 5 to 8 percent slopes
OrD2	Orangeburg sandy loam, 8 to 12 percent slopes, eroded
OuB	Orangeburg-Urban land complex, 2 to 5 percent slopes
Ps	Psamments
ReB	Red Bay loamy sand, 2 to 5 percent slopes
ReC	Red Bay loamy and, 5 to 8 percent slopes
TrB	Troup loamy sand, 2 to 5 percent slopes
TrC	Troup loamy sand, 5 to 12 percent slopes
TrD	Troup loamy sand, 12 to 18 percent slopes
TrE	Troup loamy sand, 12 to 25 percent slopes
TuE	Troup loamy sand, 18 to 25 percent slopes
Ua	Udorthents, loamy
Ub	Udorthents-Urban land complex, 0 to 10 percent slopes
UdC	Urban land, 0 to 10 percent slopes
UoC	Urban land-Orangeburg complex, 0 to 10 percent slopes
UtC	Urban land-Troup complex, 0 to 10 percent slopes
VAC	Vaucluse and Ailey soils, 5 to 12 percent slopes
VAE	Vaucluse and Ailey soils, 12 to 25 percent slopes
WbA	Wahee fine sandy loam, 0 to 2 percent slopes, rarely flooded

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline and neatline

AD HOC BOUNDARY (label)

- Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

- Interstate (173)
- Federal (287)
- State (52)
- County, farm or ranch (1283)

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or Small (Named where applicable)

PITS

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban area) (occupied)
- Church
- School
- Indian mound (label)
- Located object (label) — Tower
- Tank (label) — Gas
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label) — CANAL
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial
- Intermittent

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS — NaC NaB

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

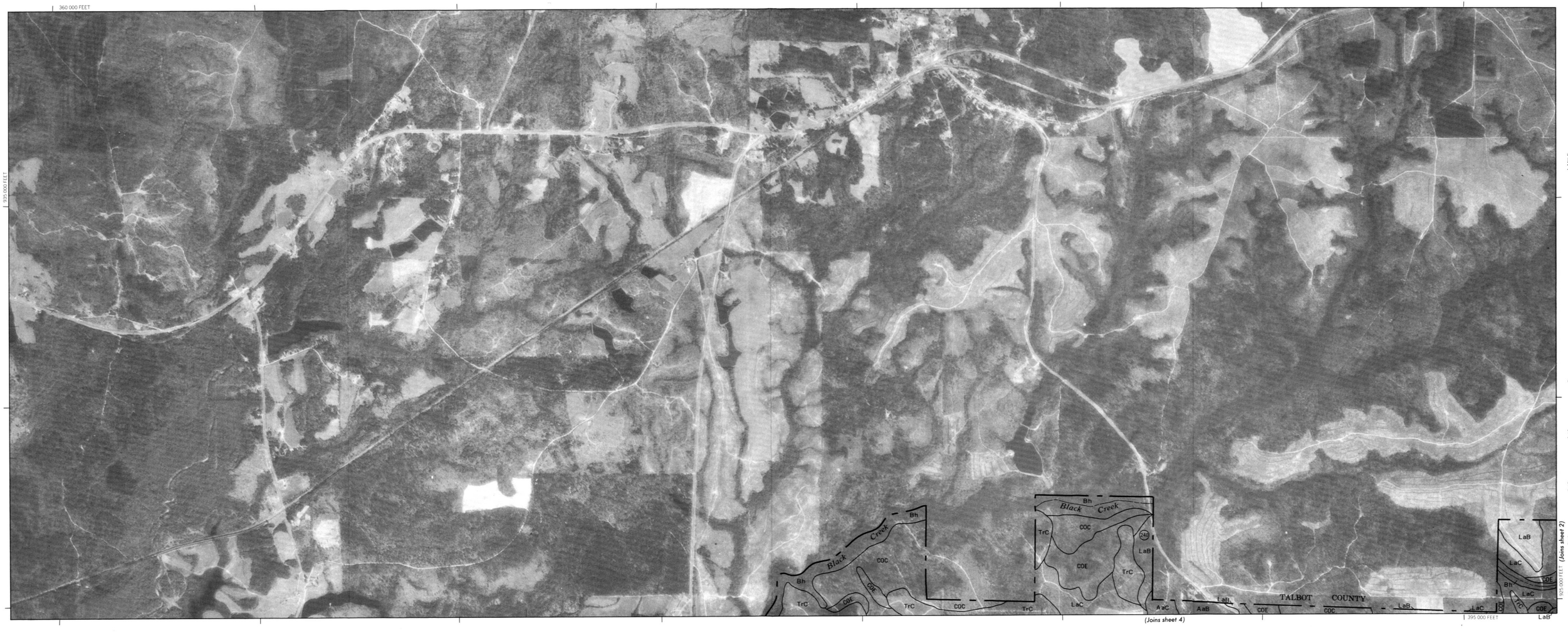
DEPRESSION OR SINK

SOIL SAMPLE (normally not shown)

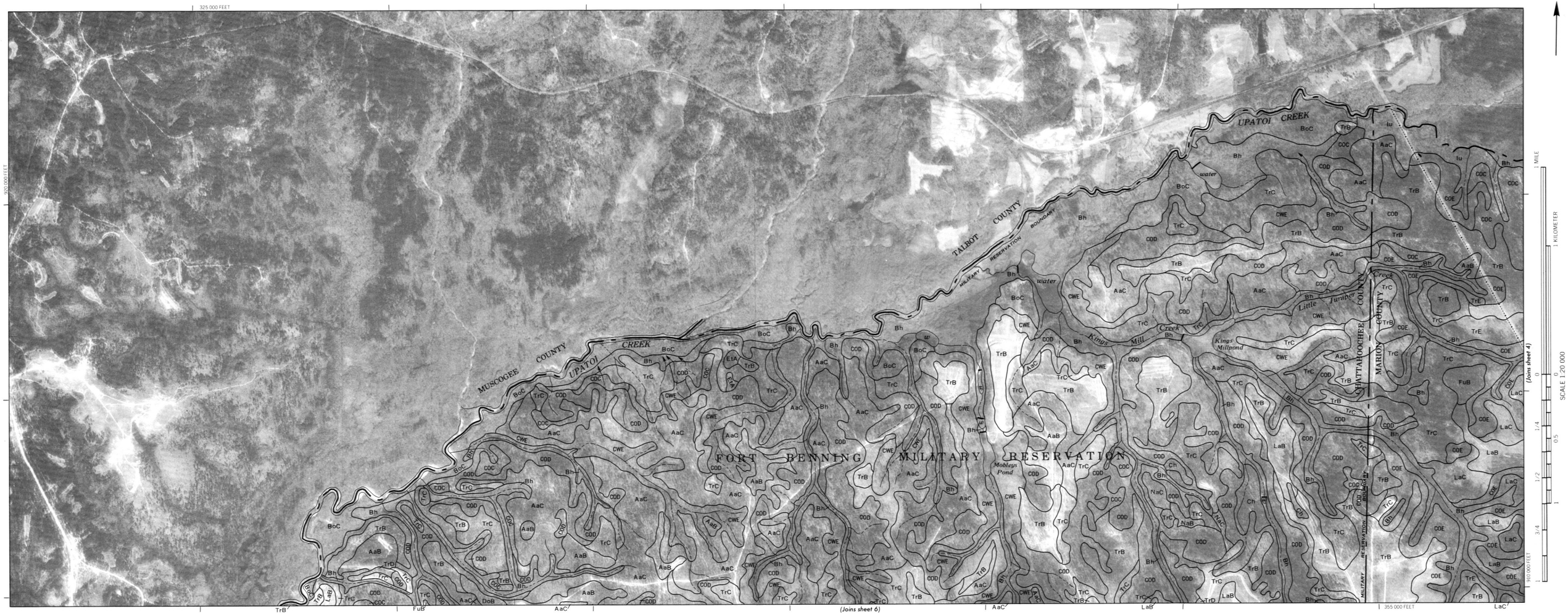
MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot
- Borrow area (3 ac. or less)

SOIL SURVEY OF CHATTAHOOCHEE AND MARION COUNTIES, GEORGIA — SHEET NUMBER 1

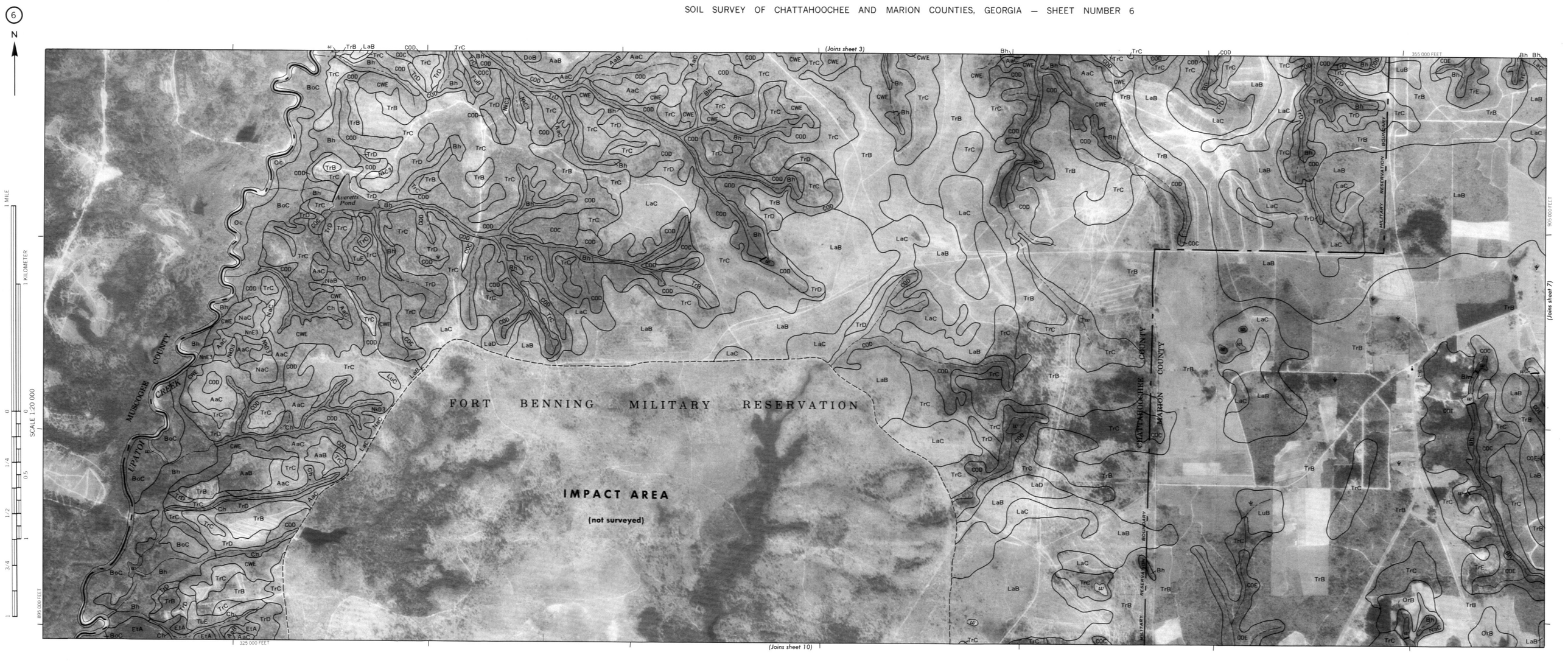


2
N
1 MILE
1 KILOMETER
SCALE 1:20 000
925 000 FEET
400 000 FEET
435 000 FEET
935 000 FEET
(Joins sheet 1)
(Joins sheet 5)
TALBOT COUNTY
TAYLOR COUNTY
LaD
LaB
LaE
LaC
Bh
COE
COC
TrB
TrC
TrD
TrE
lu

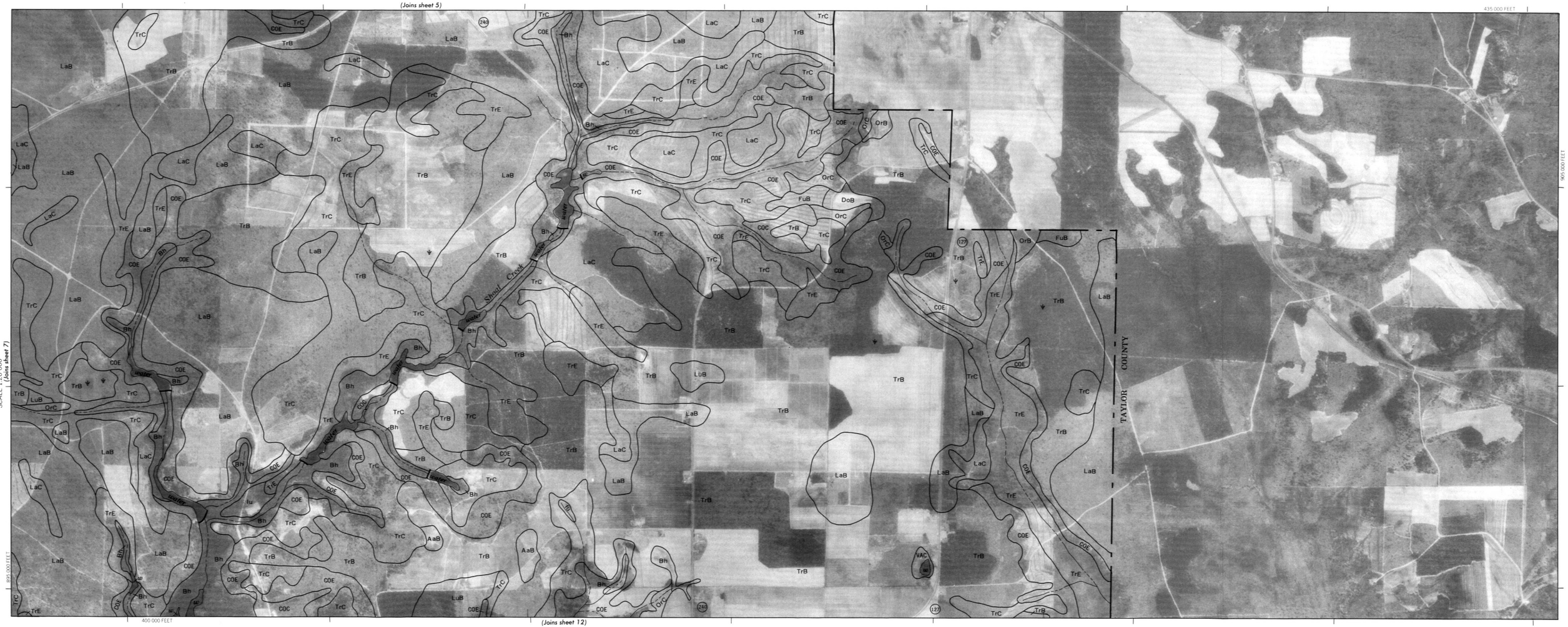

325 000 FEET
920 000 FEET
910 000 FEET
355 000 FEET
N
MUSCOGEE COUNTY
TALBOT COUNTY
CHATTAHOOCHEE COUNTY
MARION COUNTY
UPATOI CREEK
Little Juniper Creek
Kings Mill Creek
Kings Millpond
Mobleys Pond
water
FORT BENNING MILITARY RESERVATION
RESERVATION BOUNDARY
MILITARY RESERVATION BOUNDARY
(Joins sheet 4)
(Joins sheet 6)
SCALE 1:20 000
1 MILE
1 KILOMETER

4
N
SCALE 1:20 000
1 MILE
1 KILOMETER
0
0.5
1
1/4
1/2
3/4
1
910 000 FEET
920 000 FEET
360 000 FEET
395 000 FEET
(Joins sheet 1)
(Joins sheet 3)
(Joins sheet 5)
(Joins sheet 7)
TALBOT COUNTY
Upatoi Creek
Juniper Creek
Little Juniper Creek
Black Creek
Fort Perry Creek
Juniper Lake
water
Bh
CoE
CoC
TrB
TrC
TrE
LaB
LaC
AaB
AaC
NaB
NaC
DoC
FuB
LuC
LaE
VAC
VAE

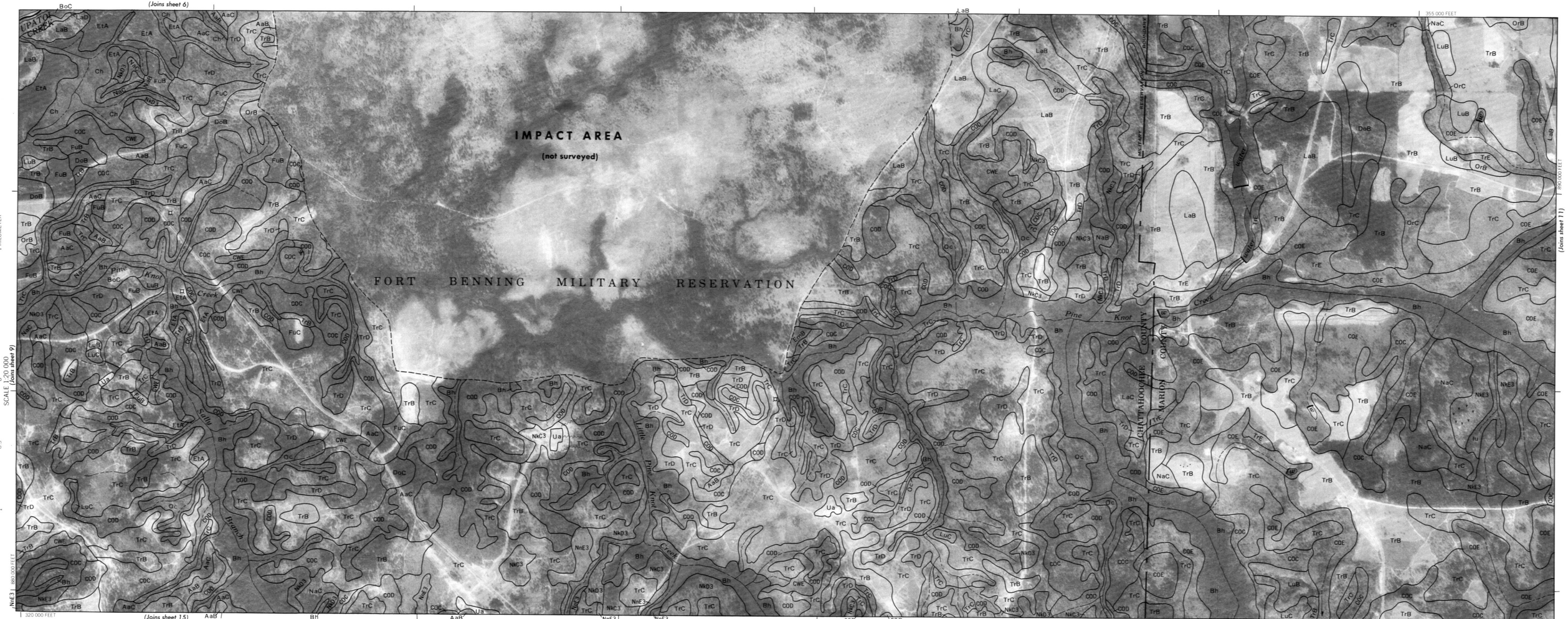
SOIL SURVEY OF CHATTAHOOCHEE AND MARION COUNTIES, GEORGIA — SHEET NUMBER 5


6
N
SCALE 1:20 000
1 MILE
1 KILOMETER
0
0.5
1
1/4
1/2
3/4
1
895 000 FEET
905 000 FEET
325 000 FEET
355 000 FEET
(Joins sheet 3)
(Joins sheet 7)
(Joins sheet 10)
FORT BENNING MILITARY RESERVATION
IMPACT AREA
(not surveyed)
MUSCOGEE COUNTY
CHATTAHOOCHEE COUNTY
MARION COUNTY
MILITARY RESERVATION BOUNDARY
CREEK
(PATSY
Averetts Pond
BoC
Oc
TrB
TrC
TrD
Bh
CWE
COD
COC
LaB
LaC
LaD
AaB
AaC
NaB
NaC
NhE3
Ch
EtA
TuE
TuD
TuC
TrE
LuB
LuC
OrB
CdE

SOIL SURVEY OF CHATTAHOOCHEE AND MARION COUNTIES, GEORGIA — SHEET NUMBER 7


8
N
(Joins sheet 5)
435 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000
(Joins sheet 7)
895 000 FEET
900 000 FEET
400 000 FEET
(Joins sheet 12)
TAYLOR COUNTY
Shoal Creek
LaB
LaC
TrB
TrC
TrE
COE
Bh
OrB
OrC
FuB
DoB
LuB
AaB
VAC

285 000 FEET
890 000 FEET
N
MUSCOGEE COUNTY
UPATOI CREEK
Upatoi Creek
Pinc
Huntington Creek
FORT BENNING MILITARY RESERVATION
Eelbeck
BoC
LaB
LaC
LaD
TrB
TrC
TrD
COD
COC
DoB
EtA
NaB
NaC
FuB
GrB
Bh
Oc
CWE
TuE
NkD3
NnE3
(Joins sheet 14)
(Joins sheet 10)
315 000 FEET
880 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000

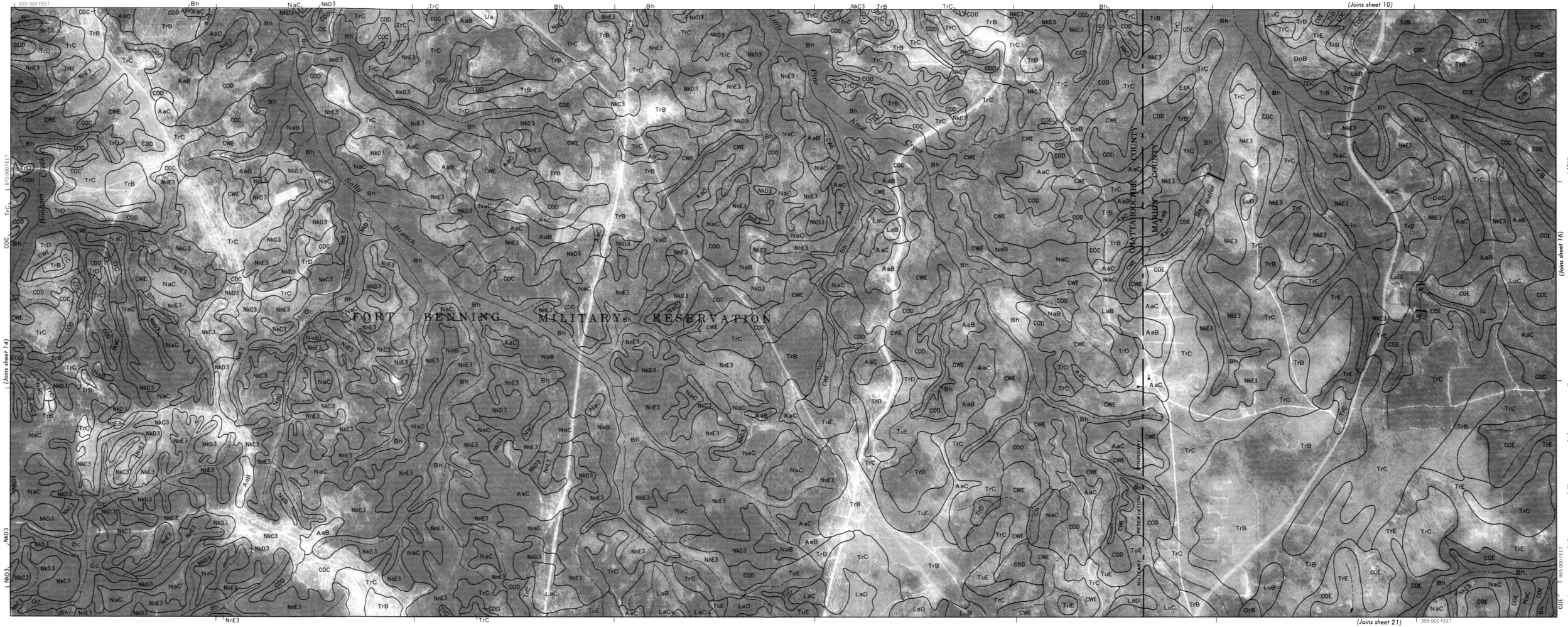

10
N
(Joins sheet 6)
IMPACT AREA
(not surveyed)
FORT BENNING MILITARY RESERVATION
CHATTAHOOCHEE COUNTY
MARION COUNTY
Upatoi Creek
Pine Knot Creek
Little Pine Knot Creek
Standing Boy Creek
Mulberry Fork
Kinnett
355 000 FEET
320 000 FEET
(Joins sheet 9)
(Joins sheet 11)
(Joins sheet 15)
SCALE 1:20 000
1 MILE
1 KILOMETER

11
N
360 000 FEET
395 000 FEET
(Joins sheet 7)
(Joins sheet 10)
(Joins sheet 12)
(Joins sheet 16)
Lake Lambert
Mill Creek
Parkers Lake
Pine Knot Creek
Little Creek
water
1 MILE
1 KILOMETER
SCALE 1:20 000

12
N
(Joins sheet 8)
(Joins sheet 11)
(Joins sheet 17)
SCALE 1:20 000
1 MILE
1 KILOMETER
400 000 FEET
435 000 FEET
Five Points
Shoal Creek
Little Shoal Creek
Cedar Creek
TAYLOR COUNTY
Little Lab Creek
water
LaB
TrB
TrC
TrE
COE
Bh
AaB
AaC
DoB
DoC
FuB
FuC
LaC
LaE
LuB
LuC
NaB
NaC
OrB
OrC
OrD2
Iu

245 000 FEET
875 000 FEET
865 000 FEET
280 000 FEET
MUSCOGEE COUNTY
RUSSELL COUNTY
ALABAMA
CHATTAHOOCHEE RIVER
FORT BENNING MILITARY RESERVATION
(not surveyed)
water
Upatoi Creek
Hamlet Creek
Harris Creek
Joughaby Creek
Weathers Creek
(Joins sheet 14)
(Joins sheet 19)
N
1 MILE
1 KILOMETER
SCALE 1:20 000

14
N
MUSCOGEE COUNTY
UPATOI CREEK
(not surveyed)
Ochillee
Ochillee Creek
FORT BENNING MILITARY RESERVATION
Clear Creek
Upatoi Ck
Hamilton Cr.
SCALE 1:20 000
1 MILE
1 KILOMETER
(Joins sheet 13)
(Joins sheet 9)
(Joins sheet 15)
(Joins sheet 20)
285 000 FEET
315 000 FEET
295 000 FEET
305 000 FEET

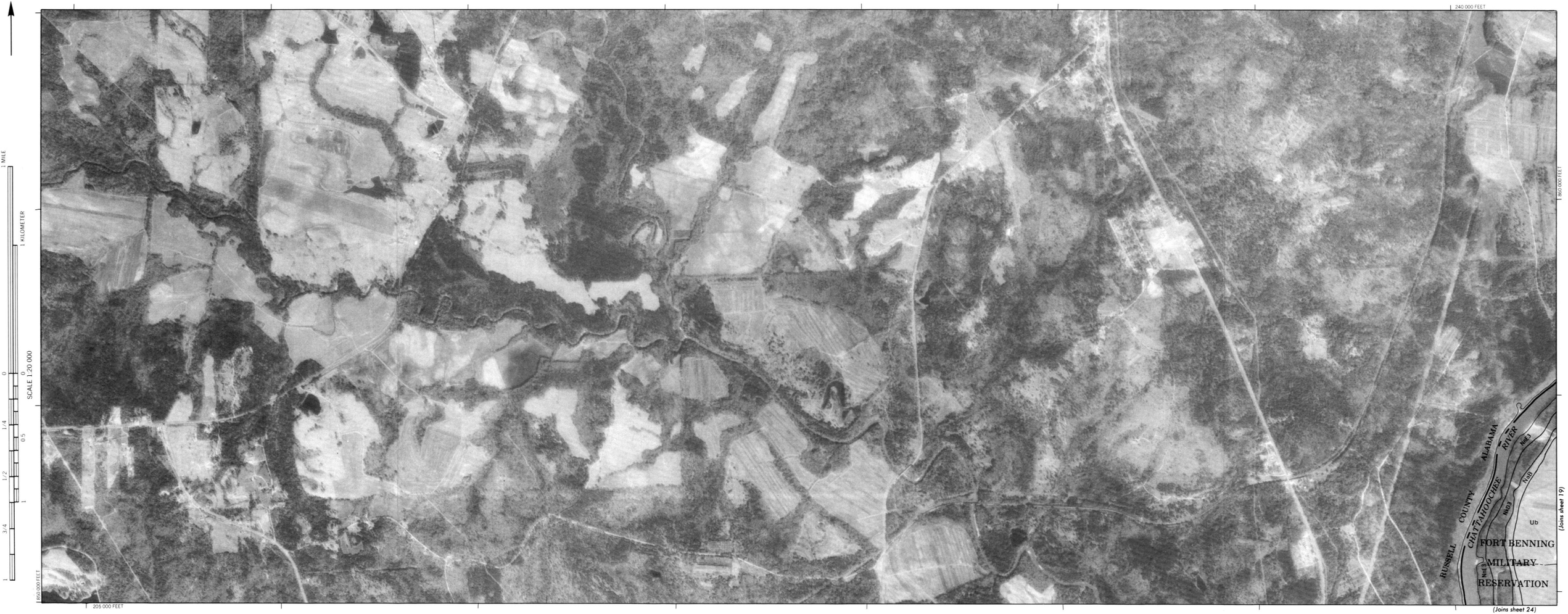

N
320 000 FEET
875 000 FEET
865 000 FEET
355 000 FEET
(Joins sheet 10)
(Joins sheet 14)
(Joins sheet 16)
(Joins sheet 21)
FORT BENNING MILITARY RESERVATION
CHATTAHOOCHEE COUNTY
MARION COUNTY
Bonham Creek
Stalli Branch
Little Pine Knot Creek
Bh Water
MILITARY RESERVATION BOUNDARY
1 MILE
1 KILOMETER
SCALE 1:20 000

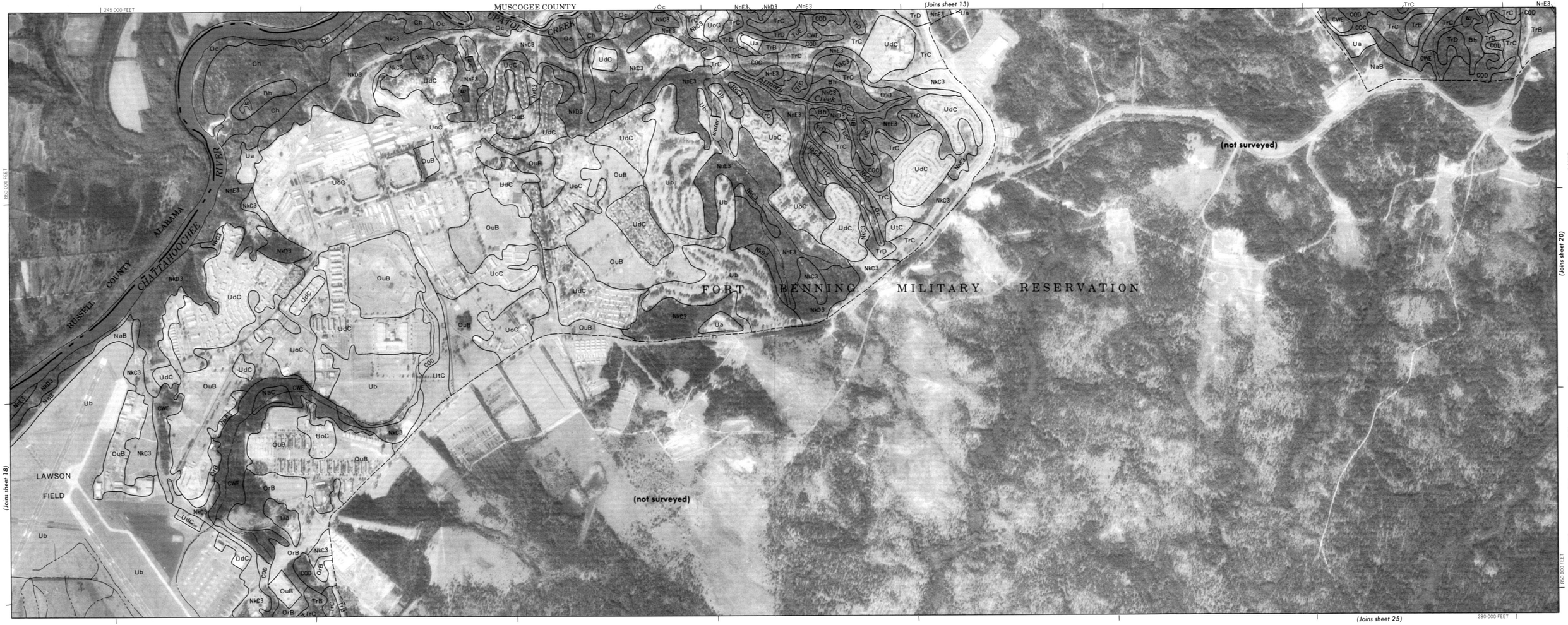
16
N
(Joins sheet 11)
395 000 FEET
875 000 FEET
(Joins sheet 17)
(Joins sheet 15)
SCALE 1:20 000
1 MILE
1 KILOMETER
865 000 FEET
360 000 FEET
(Joins sheet 22)
Heards Lakes
water
Hardage Ford Creek

17
N
400 000 FEET
(Joins sheet 12)
875 000 FEET
(Joins sheet 16)
(Joins sheet 23)
435 000 FEET
865 000 FEET
TAYLOR COUNTY
SCHLEY COUNTY
Tazewell
Shoal Creek
Gin Creek
1 MILE
1 KILOMETER
SCALE 1:20 000

18

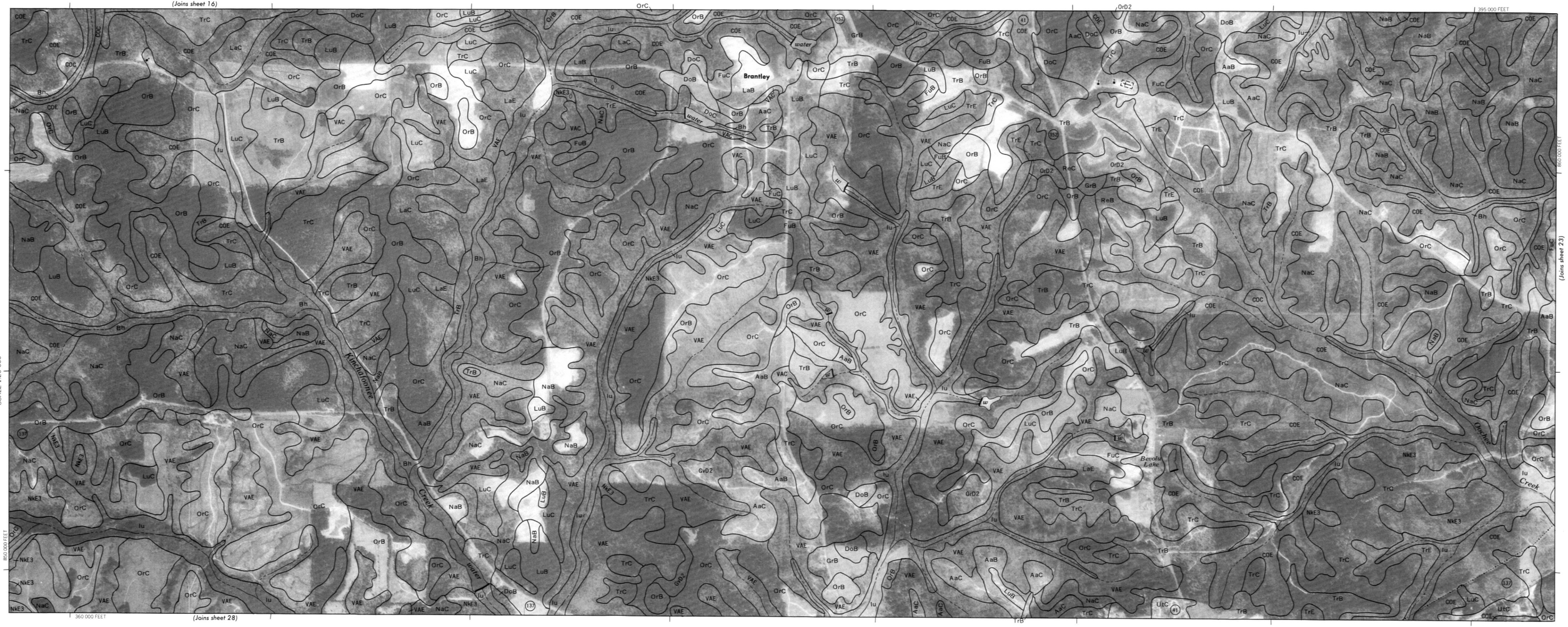
N


240 000 FEET
860 000 FEET
205 000 FEET
850 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000
0
0.5
1
1/4
1/2
3/4
1
ALABAMA
RIVER
CHATTAHOOCHEE
COUNTY
RUSSELL
NuE3
NuD3
NuB
Ub
FORT BENNING
MILITARY
RESERVATION
(Joins sheet 19)
(Joins sheet 24)


MUSCOGEE COUNTY
245 000 FEET
(Joins sheet 13)
N
ALABAMA
CHATTAHOOCHEE
RIVER
RUSSELL COUNTY
UPATOI CREEK
Upatoi Creek
FORT BENNING MILITARY RESERVATION
(not surveyed)
(not surveyed)
LAWSON FIELD
(Joins sheet 18)
(Joins sheet 20)
(Joins sheet 25)
280 000 FEET
360 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000

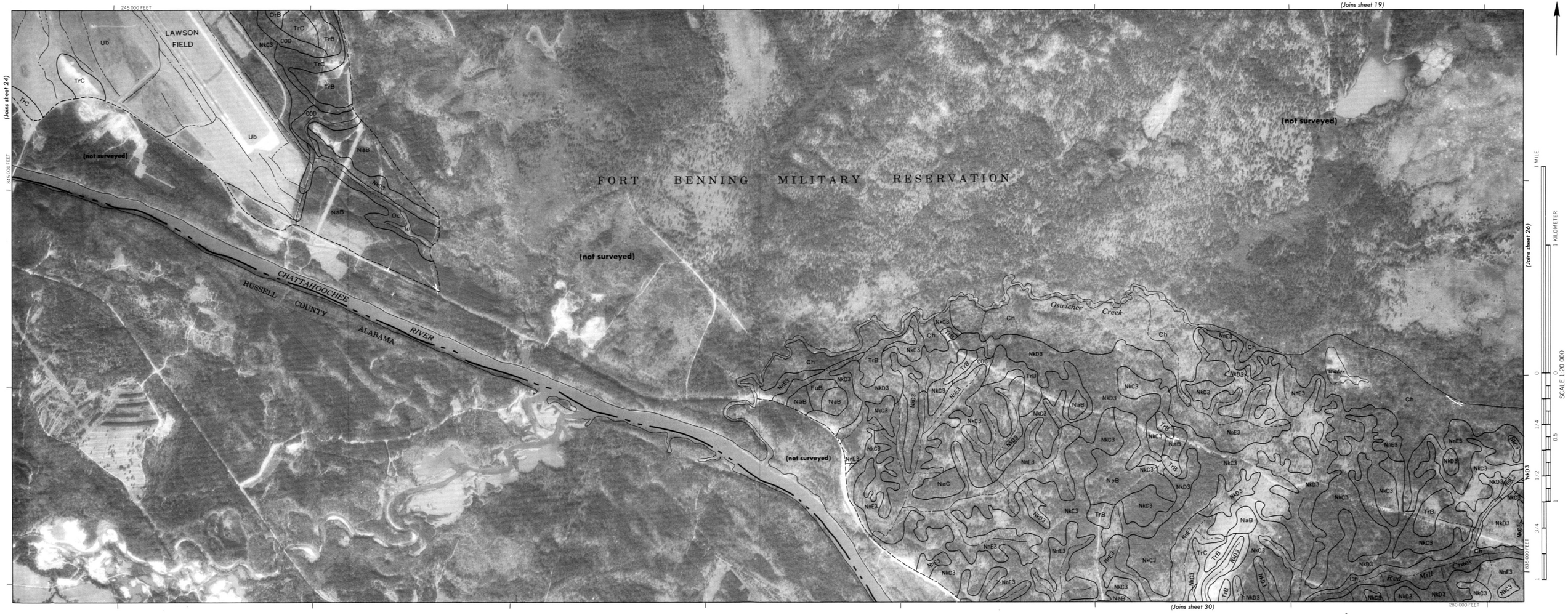
20
N
(Joins sheet 14)
315 000 FEET
(not surveyed)
FORT BENNING MILITARY RESERVATION
Victoria Pond
Kings Pond
Lower Kings Pond
Hallowa Creek
Ochillee Creek
Halloca Creek
Creek
Branch
Spring Branch
water
CENTRAL OF GEORGIA
SCALE 1:20 000
1 MILE
1 KILOMETER
0
0.5
1/4
1/2
3/4
1
850 000 FEET
860 000 FEET
(Joins sheet 19)
(Joins sheet 21)
(Joins sheet 26)
285 000 FEET

N
320 000 FEET
860 000 FEET
(Joins sheet 15)
(Joins sheet 21)
(Joins sheet 22)
(Joins sheet 27)
355 000 FEET
FORT BENNING MILITARY RESERVATION
CHATTAHOOCHEE COUNTY
MARION COUNTY
Halloca Creek
Daniels Pond
Sidney Pond
Hollis Creek
Hollis Branch
Union
1 MILE
1 KILOMETER
SCALE 1:20 000

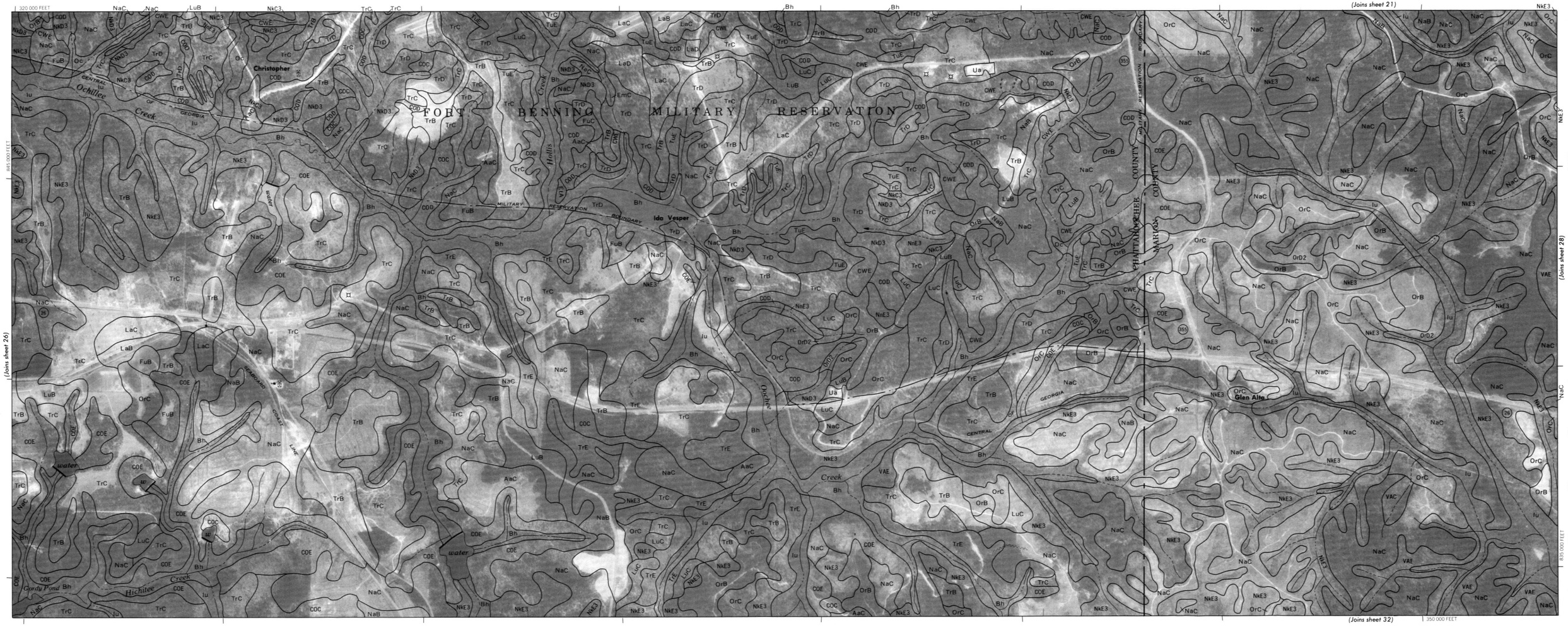

N
(Joins sheet 16)
395 000 FEET
860 000 FEET
(Joins sheet 23)
360 000 FEET
(Joins sheet 28)
SCALE 1:20 000
1 MILE
1 KILOMETER
Brantley
Beyola Lake
Kinchafoonee Creek
Orchee Creek
water

N
400 000 FEET
(Joins sheet 17)
850 000 FEET
(Joins sheet 22)
(Joins sheet 29)
435 000 FEET
Hardaway Creek
Ford Creek
Gin Creek
Shuel Cr.
Tazewell
Buck Creek
Chattahoochee Creek
SCHLEY COUNTY
1 MILE
1 KILOMETER
SCALE 1:20 000

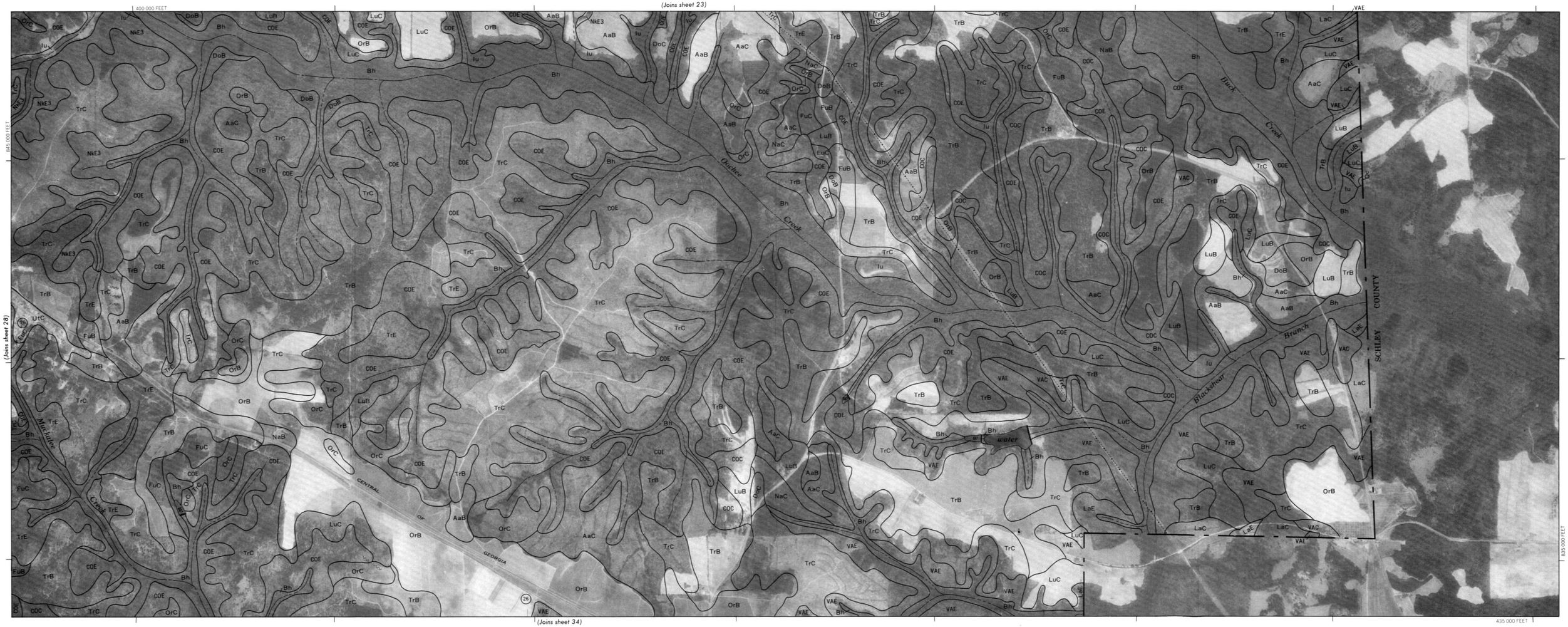
24
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
0.5
1/4
1/2
3/4
1
835 000 FEET
205 000 FEET
240 000 FEET (Joins sheet 18)
845 000 FEET
(Joins sheet 25)
RUSSELL COUNTY
ALABAMA
CHATTAHOOCHEE RIVER
(not surveyed)
MeE3
NkD3
HaB
Ub
TrC

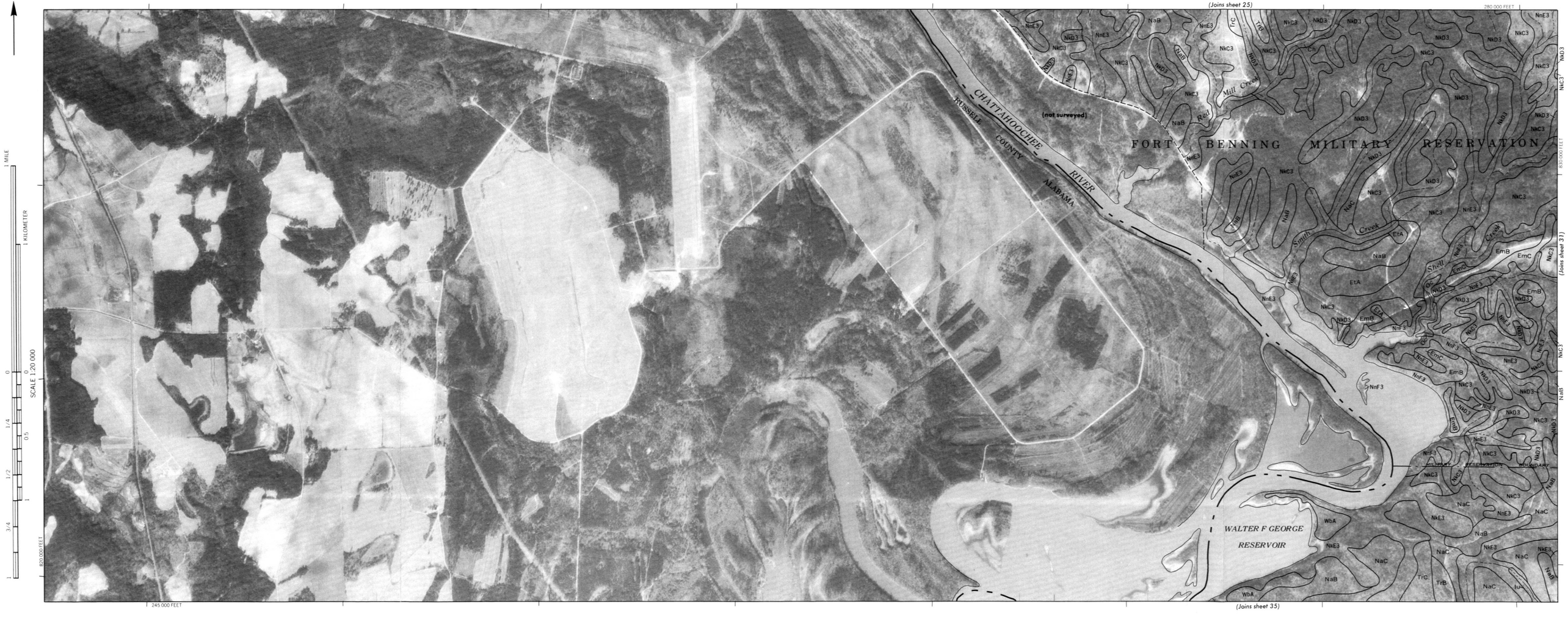

25
N
245 000 FEET
(Joins sheet 19)
(Joins sheet 24)
845 000 FEET
LAWSON FIELD
Ub
TrC
OhB
CoD
NkC3
TrB
NaB
Or
(not surveyed)
FORT BENNING MILITARY RESERVATION
CHATTAHOOCHEE RIVER
RUSSELL COUNTY
ALABAMA
Ostuchee Creek
Ch
NkD3
NnE3
FuB
NaC
Water
Red Mill Creek
(Joins sheet 26)
(Joins sheet 30)
835 000 FEET
280 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000
0
0.5
1
1/4
1/2
3/4

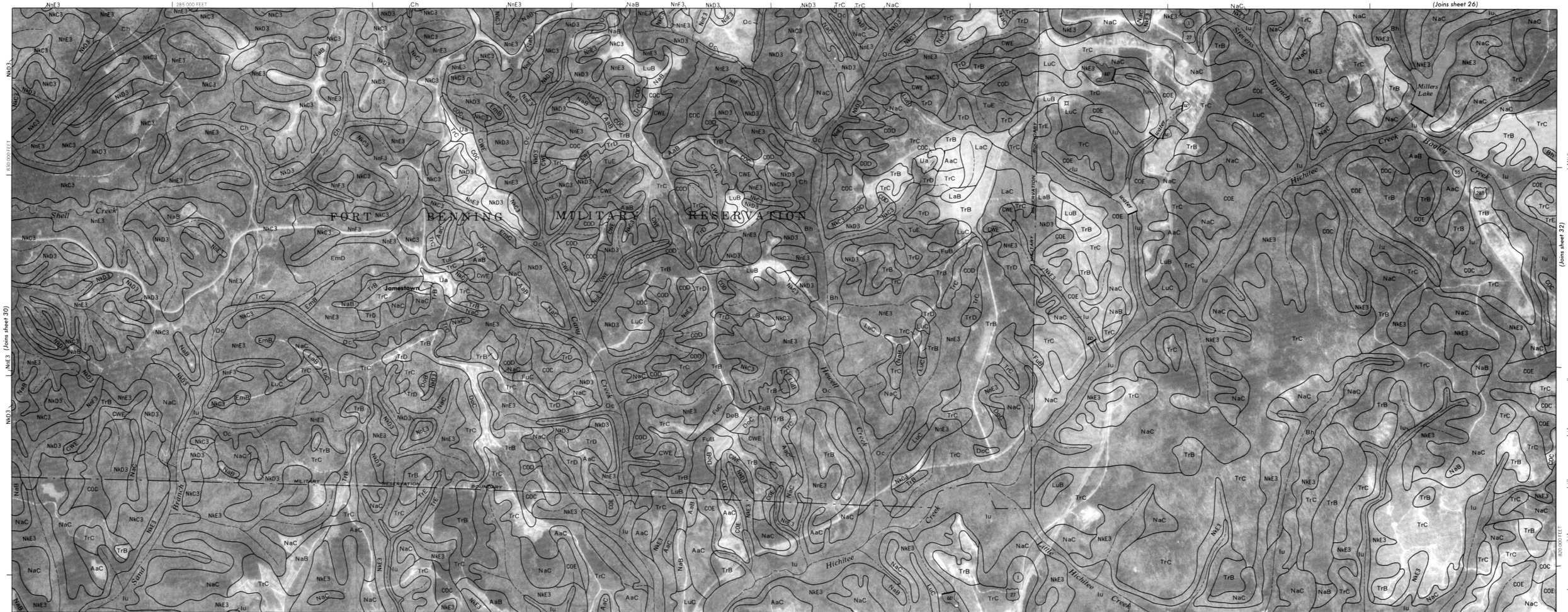
26
N
(Joins sheet 20)
315 000 FEET
(Joins sheet 27)
(Joins sheet 25)
(Joins sheet 31)
285 000 FEET
835 000 FEET
865 000 FEET
SCALE 1:20 000
1 MILE
1 KILOMETER
(not surveyed)
(not surveyed)
FORT BENNING MILITARY RESERVATION
Osuchee Creek
Weems Pond
Osuchee Creek
Spring Branch
Cooks Branch
Ochillee Creek
CUSSETA
(county seat)
SEABOARD COAST LINE
Ch
Bh
Ua
Oc
NaB
NaC
NkC3
NkD3
NnE3
TrB
TrC
TrD
COC
COE
CWE
LuB
LuC
Iu
EtA
EmB
EmC
AaB
AaC
FuB
FuC
OrC
VAE

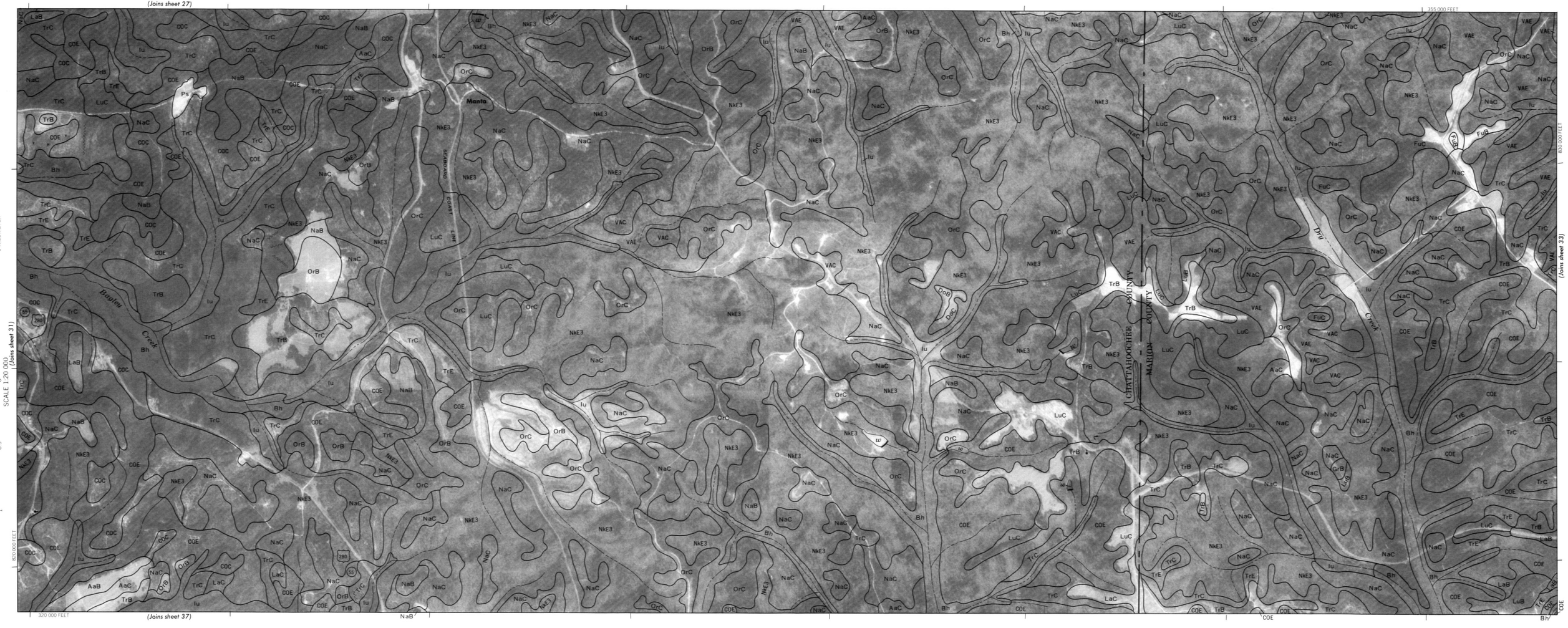

320 000 FEET
(Joins sheet 21)
N
FORT BENNING MILITARY RESERVATION
MILITARY RESERVATION BOUNDARY
CHATTAHOOCHEE COUNTY
MARION COUNTY
Christopher
Ida Vesper
Glen Alta
Ochillee Creek
Hichitee Creek
Gordy Pond
water
CENTRAL OF GEORGIA
SEABOARD COAST LINE
(Joins sheet 26)
(Joins sheet 28)
(Joins sheet 32)
350 000 FEET
835 000 FEET
SCALE 1:20 000
1 MILE
1 KILOMETER

28
N
(Joins sheet 22)
395 000 FEET
845 000 FEET
835 000 FEET
360 000 FEET
(Joins sheet 33)
(Joins sheet 29)
(Joins sheet 27)
1 MILE
1 KILOMETER
SCALE 1:20 000
Kinchafoonee Creek
Bh Creek
Peacock Ditch
Elmview
BUENA VISTA
(county seat)
Walker Williams Lakes
Zellabee
water


29
N
400 000 FEET
(Joins sheet 23)
845 000 FEET
(Joins sheet 28)
(Joins sheet 34)
435 000 FEET
SCHLEY COUNTY
MARION COUNTY
Buck Creek
Orchive Creek
Blackhear Branch
Mulatto Creek
CENTRAL GEORGIA
water
1 MILE
1 KILOMETER
SCALE 1:20 000
835 000 FEET

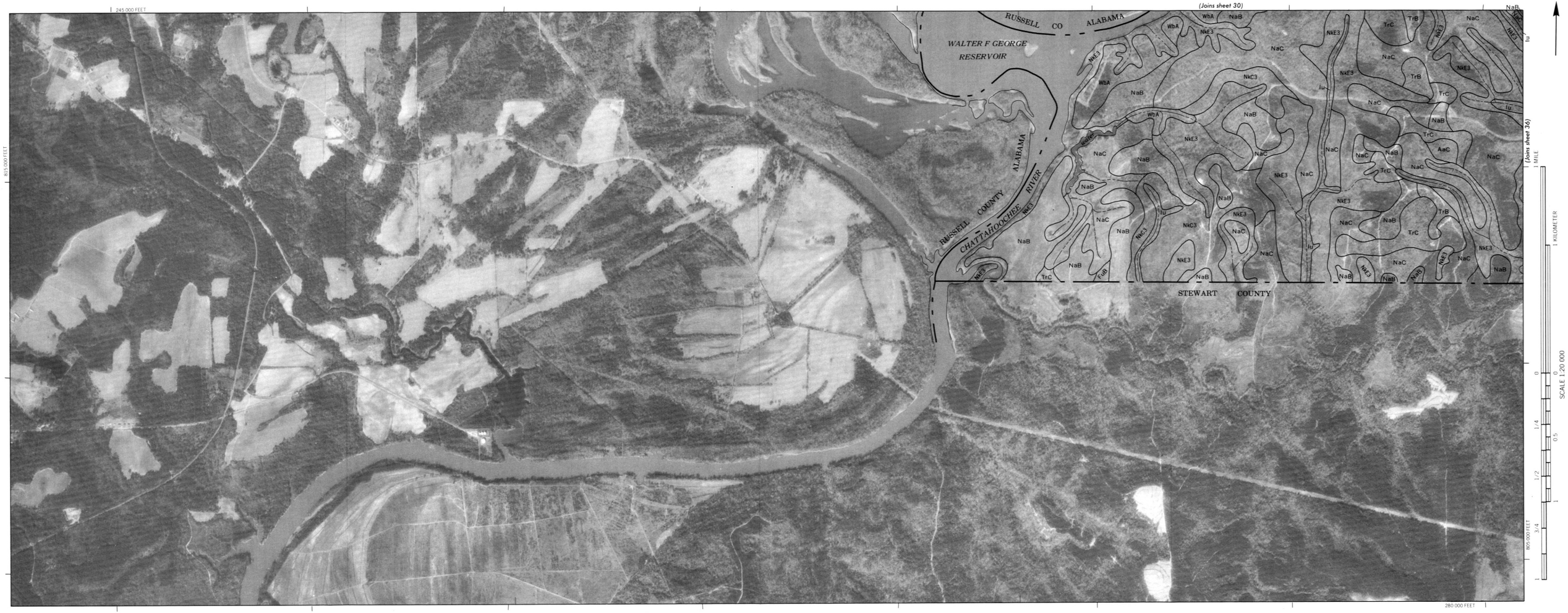

30
N
(Joins sheet 25)
280 000 FEET
CHATTAHOOCHEE
RUSSELL COUNTY
ALABAMA
RIVER
(not surveyed)
FORT BENNING MILITARY RESERVATION
Mill Creek
Shell Creek
Smith Creek
WALTER F GEORGE RESERVOIR
MILITARY RESERVATION BOUNDARY
(Joins sheet 31)
(Joins sheet 35)
245 000 FEET
830 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000

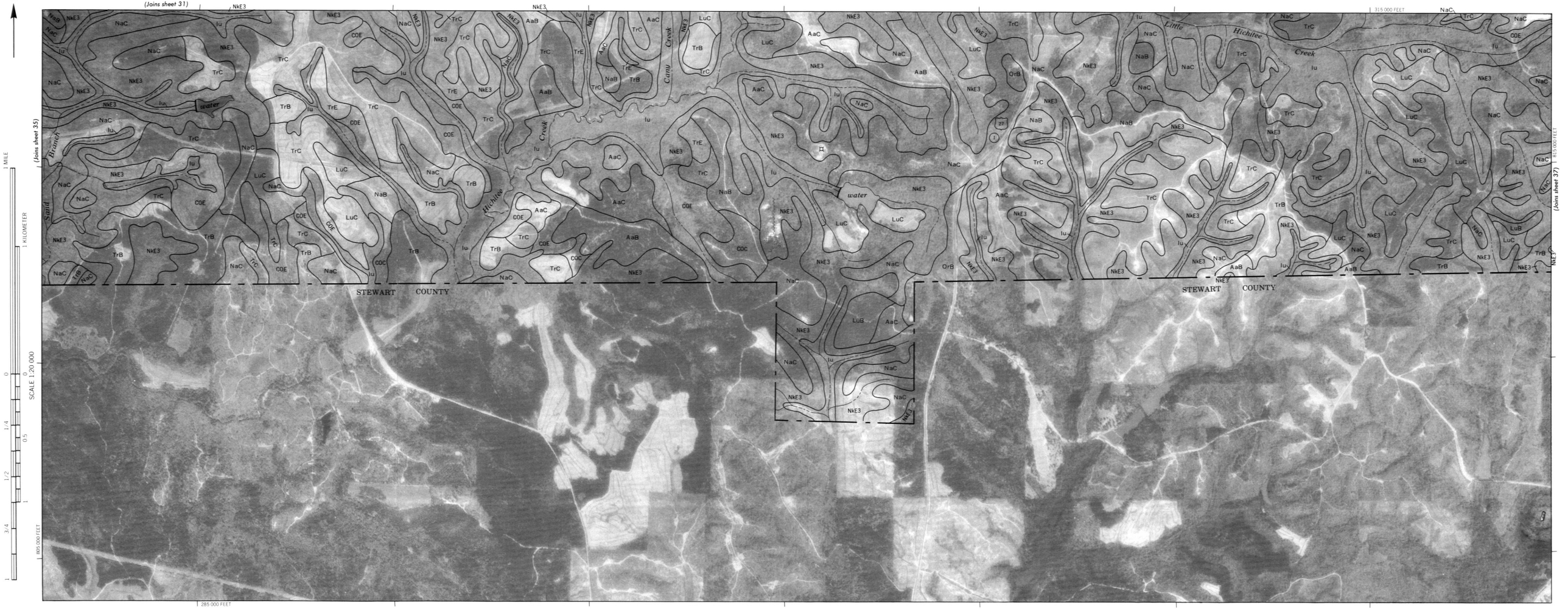

N
285 000 FEET
315 000 FEET
830 000 FEET
820 000 FEET
(Joins sheet 26)
(Joins sheet 30)
(Joins sheet 32)
(Joins sheet 36)
FORT BENNING MILITARY RESERVATION
MILITARY RESERVATION BOUNDARY
Shell Creek
Conn Creek
Sand Branch
Hichitee Creek
Little Hichitee Creek
Stevens Branch
Bagley Creek
Millers Lake
Jamestown
SCALE 1:20 000
1 KILOMETER
1 MILE

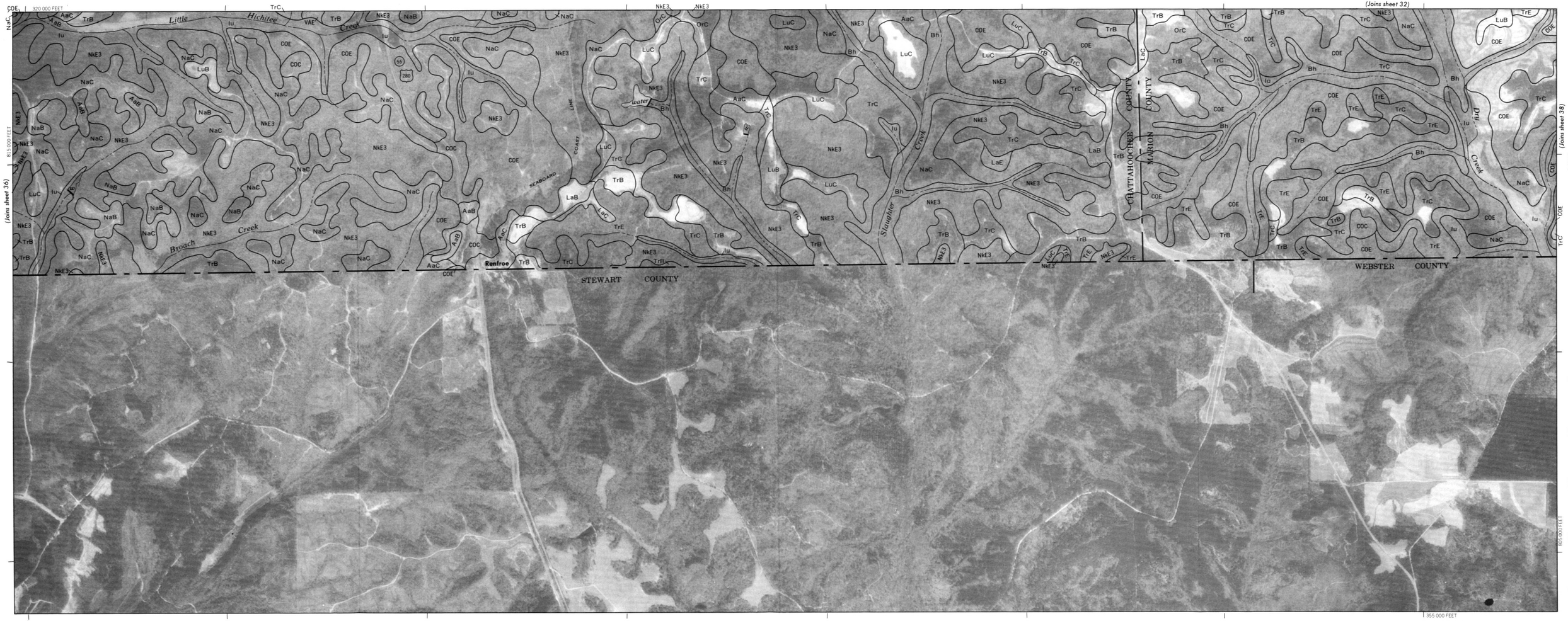

N
(Joins sheet 27)
355 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000
(Joins sheet 31)
820 000 FEET
320 000 FEET
(Joins sheet 37)
(Joins sheet 33)
Manta
Bogler Creek
Drip Creek
CHATTAHOOCHEE COUNTY
MARION COUNTY
STATE LINE
SEABOARD COAST LINE
TrB
TrC
TrE
NaB
NaC
NkE3
OrB
OrC
LuC
VAC
VAE
COE
Bh
Ps
DoB
DoC
FuB
FuC
GrB
LaB
LaC
AaB
AaC

N
360 000 FEET
395 000 FEET
630 000 FEET
620 000 FEET
(Joins sheet 28)
(Joins sheet 32)
(Joins sheet 34)
(Joins sheet 38)
Berginville
Kinchafoonee Creek
Lanahassee Creek
MARION COUNTY AIRPORT
1 MILE
1 KILOMETER
SCALE 1:20 000

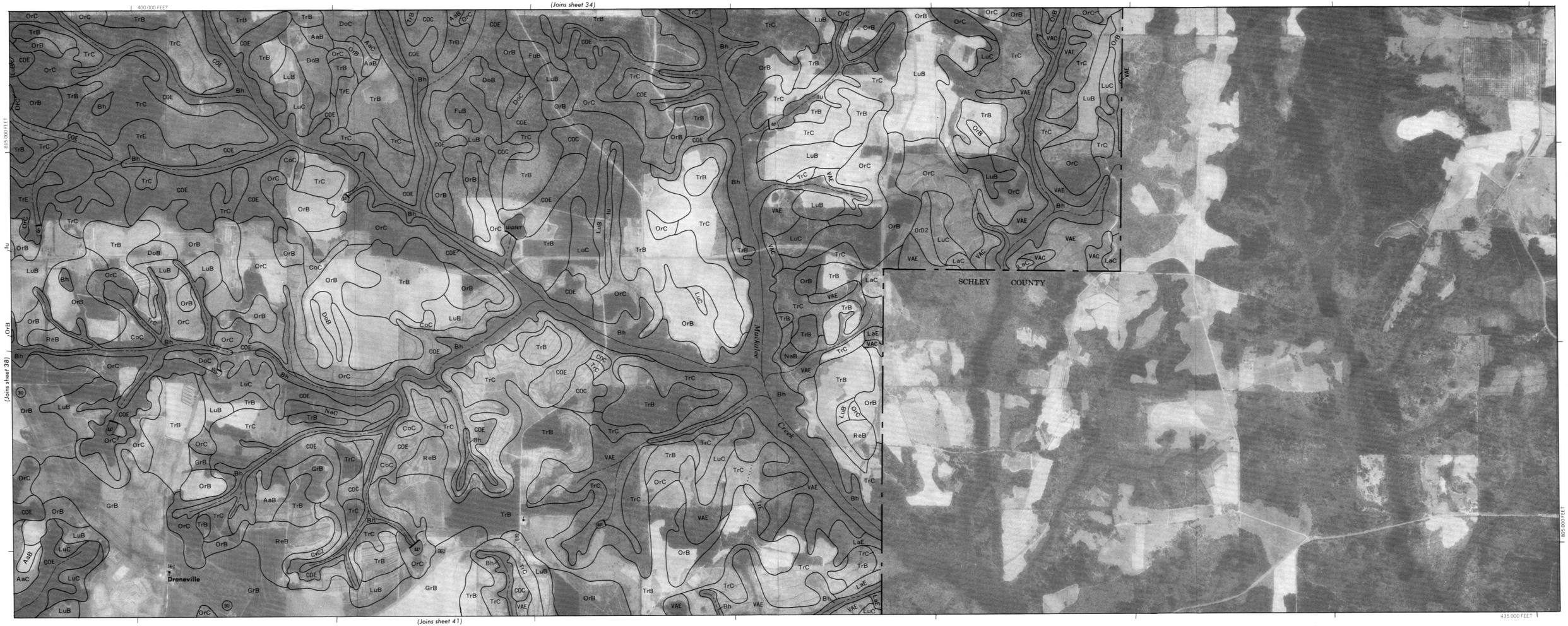
34
N
(Joins sheet 29)
(Joins sheet 33)
(Joins sheet 39)
SCALE 1:20 000
1 MILE
1 KILOMETER
800 000 FEET
400 000 FEET
435 000 FEET
830 000 FEET
SCHLEY COUNTY
Doyle
Putnam
Muckalee Creek
Central of Georgia
Walden Branch
water


35
N
245 000 FEET
280 000 FEET
815 000 FEET
805 000 FEET
(Joins sheet 30)
(Joins sheet 36)
RUSSELL CO
ALABAMA
WALTER F GEORGE RESERVOIR
RUSSELL COUNTY
ALABAMA
CHATTAHOOCHEE RIVER
STEWART COUNTY
NaB
NaC
NkE3
NkC3
WbA
TrB
TrC
AaC
Iu
FuB
1 MILE
1 KILOMETER
SCALE 1:20 000


36
N
(Joins sheet 31)
(Joins sheet 35)
(Joins sheet 37)
STEWART COUNTY
STEWART COUNTY
Said Branch
Hichitee Creek
Little Hichitee Creek
Canal Creek
water
315 000 FEET
285 000 FEET
815 000 FEET
805 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000

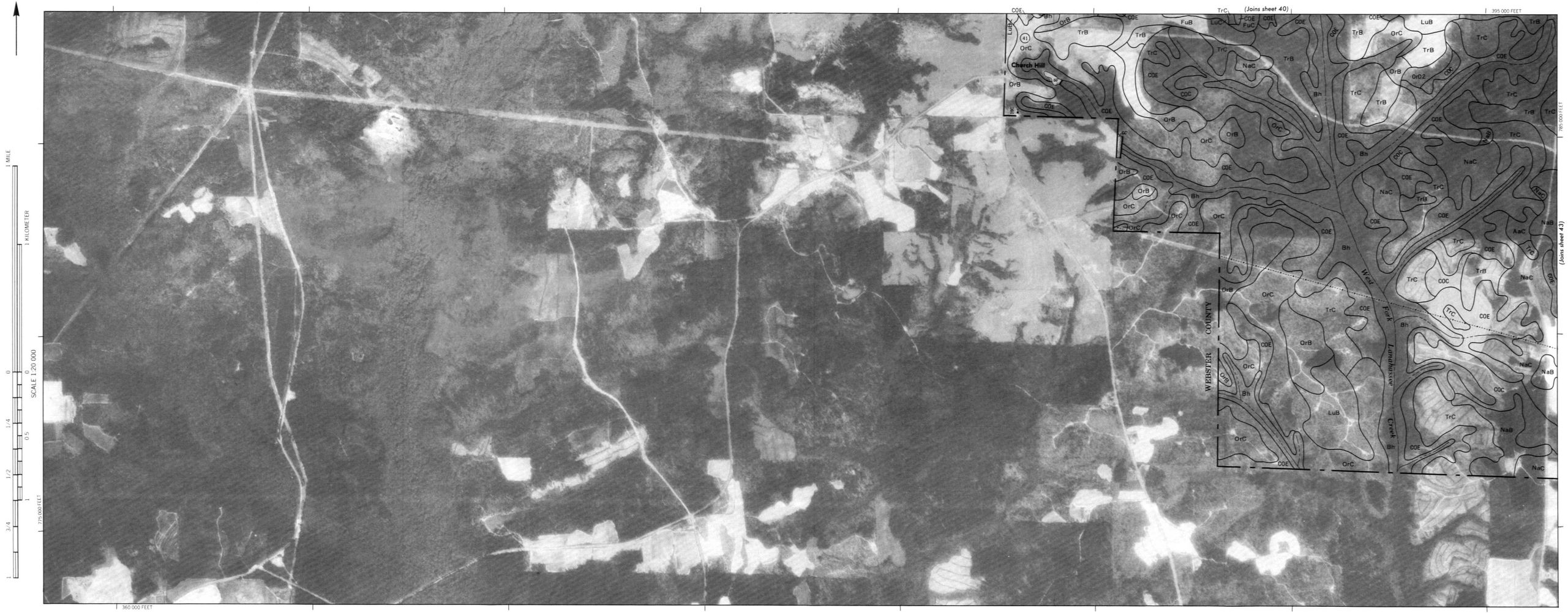

N
320 000 FEET
355 000 FEET
815 000 FEET
852 000 FEET
(Joins sheet 36)
(Joins sheet 32)
(Joins sheet 38)
Little Hichitee Creek
Broach Creek
Dry Creek
Slaughter Creek
SEABOARD COAST LINE
Renfroe
STEWART COUNTY
CHATTAHOOCHEE COUNTY
MARION COUNTY
WEBSTER COUNTY
water
1 MILE
1 KILOMETER
SCALE 1:20 000

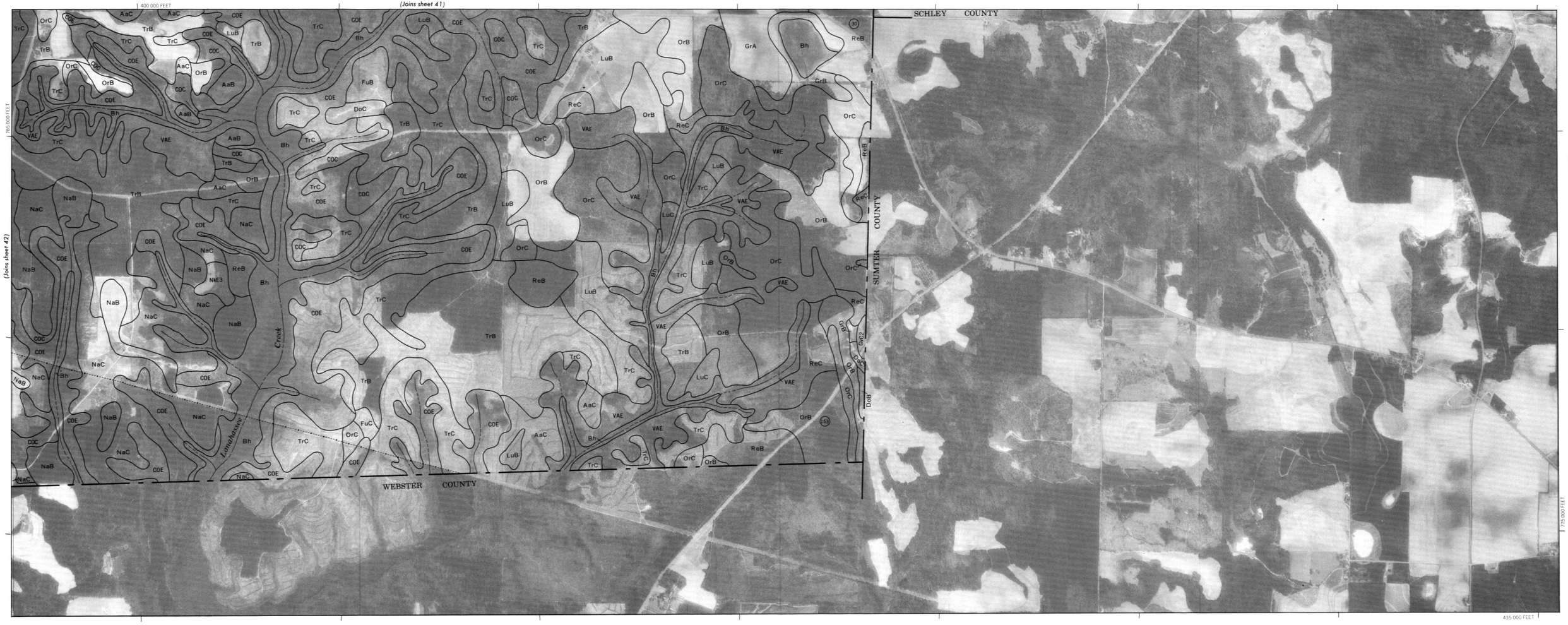
38
N
(Joins sheet 33)
(Joins sheet 37)
(Joins sheet 39)
(Joins sheet 40)
360 000 FEET
395 000 FEET
805 000 FEET
815 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000
WEBSTER COUNTY
Kinchafoonee Creek
Kinchafoonee Creek
Pyne Creek
water


39
N
400,000 FEET
(Joins sheet 34)
815,000 FEET
(Joins sheet 38)
(Joins sheet 41)
435,000 FEET
SCHLEY COUNTY
Macedonia
Creek
Droneville
1 MILE
1 KILOMETER
SCALE 1:20 000

40
N
(Joins sheet 38)
395 000 FEET
790 000 FEET
360 000 FEET
WEBSTER COUNTY
Kinchafoonee Creek
Flint Creek
West Fork Lindahassee Creek
Golden Creek
(Joins sheet 41)
(Joins sheet 42)
SCALE 1:20 000
1 MILE
1 KILOMETER

N
400 000 FEET
(Joins sheet 39)
800 000 FEET
(Joins sheet 40)
(Joins sheet 43)
435 000 FEET
SCHLEY COUNTY
Shaver Branch
Lanahassee Creek
1 MILE
1 KILOMETER
SCALE 1:20 000


42
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
0.5
1
1/4
1/2
3/4
775 000 FEET
360 000 FEET
395 000 FEET
785 000 FEET
(Joins sheet 40)
(Joins sheet 43)
WEBSTER COUNTY
West Fork Lanahassee Creek
Church Hill
41
LuB
OrB
OrC
TrB
TrC
FuB
FuC
NaC
NaB
AaC
Bh
COE
COC
OrD2


400 000 FEET
(Joins sheet 41)
785 000 FEET
(Joins sheet 42)
SCHLEY COUNTY
SUMTER COUNTY
WEBSTER COUNTY
Lanahassee Creek
435 000 FEET
775 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000
N
43